

WATER RESOURCES TECHNICAL REPORT

AUGUST 2013



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1. Introduction and Project Description

1.1 Introduction

The information presented in this technical report provides additional details in support of the FEIS for the following resources within the study area: waters of the United States (WUS) and wetlands, surface waters, floodplains, groundwater and hydrogeology, and aquatic biota and habitat. This document provides further discussions on the affected environment, impact assessment of the Preferred Alternative, and potential mitigation measures.

1.2 Project Description

The Purple Line is a proposed 16.2-mile transit line located north and northeast of Washington DC, inside the circumferential I-95/I-495 Capital Beltway. The Purple Line would extend between Bethesda in Montgomery County and New Carrollton in Prince George's County. The "Purple Line corridor" includes five major activity centers: Bethesda, Silver Spring, Takoma/Langley Park, College Park, and New Carrollton.

The purposes of the Purple Line project are the following:

- Provide faster, more direct, and more reliable east-west transit service connecting the major activity centers in the Purple Line corridor at Bethesda, Silver Spring, Takoma/Langley Park, College Park, and New Carrollton,
- Provide better connections to Metrorail services located in the corridor, and
- Improve connectivity to the communities in the corridor located between the Metrorail lines.

There are two Alternatives discussed herein: the No Build Alternative and the Preferred Alternative.

1.2.1 No Build Alternative

The No Build Alternative represents the future conditions of transportation facilities and services in 2040 in the corridor if the Purple Line were not built. The No Build Alternative includes the existing highway network and transit service, plus those transportation projects listed within the Purple Line corridor for which funding sources have been identified and have been included in the National Capital Region Transportation Planning Board's (TPB) *Financially Constrained Long-Range Transportation Plan* (CLRP) for implementation by 2040. The No Build Alternative provides the basis against which the Preferred Alternative is compared.

1.2.2 Preferred Alternative

The Preferred Alternative would be at grade except for one short tunnel section and three sections elevated on structures. The Preferred Alternative would operate mainly in dedicated or exclusive lanes, providing fast, reliable transit operations.

The following 21 stations are planned for the Preferred Alternative:

- Bethesda
- Chevy Chase Lake
- Lyttonsville
- Woodside/16th Street
- Silver Spring Transit Center
- Silver Spring Library
- Dale Drive
- Manchester Place
- Long Branch
- Piney Branch Road
- Takoma/Langley Transit Center

- Riggs Road
- Adelphi Road/West Campus
- UM Campus Center
- East Campus
- College Park
- M Square
- Riverdale Park
- Beacon Heights
- Annapolis Road/Glenridge
- New Carrollton

Stations would include ticket vending machines, weather shelters for passengers, lighting, wayfinding and informational signage, trash receptacles, seating, and security equipment such as emergency telephones and closed circuit television cameras. Most riders would walk to the stations or transfer from other transit services. Access plans for each station have been developed to enhance pedestrian and transit access for nearby communities. The stations would have either side or center platforms depending on the site characteristics and space availability.

Two storage and maintenance facilities are proposed: one at Lyttonsville in Montgomery County and the other at Glenridge in Prince George's County. Additionally, traction power substations, used to convert electric power to appropriate voltage and type to power the light rail vehicles, would be required approximately every mile.

As part of the Preferred Alternative the permanent Capital Crescent Trail would be constructed within the Georgetown Branch right-of-way for a distance of 3.3 miles between Bethesda and the CSXT Metropolitan Branch. At the junction with the CSXT the trail is planned to continue on the north side of the CSXT corridor to the SSTC. The permanent Capital Crescent Trail would replace the existing Georgetown Branch Interim Trail which currently extends from Bethesda to Stewart Avenue within the Georgetown Branch right-of-way. The completion of the trail along the CSXT corridor is contingent on agreement with CSXT on the use of their property on the north side of the CSXT tracks for the trail. If agreement is not reached by the time the Purple Line construction occurs, MTA would construct the trail from Bethesda to Talbot Avenue. From Talbot Avenue to Silver Spring an interim signed bike route on local streets would be used. MTA will plan, design, and construct the permanent Capital Crescent Trail between Bethesda and Silver Spring concurrently with the Purple Line. The Capital Crescent Trail will be owned and operated by Montgomery County, which will be responsible for providing the funds to construct it.

2. Regulatory Context and Methodology

The study area assessed for water resources is the Purple Line project's limit of disturbance (LOD), which is the boundary within which construction, materials storage, grading, landscaping, and related activities would occur. For consideration of surface water quality, the nearest sampling sites, located upstream or downstream from the study area, were used.

2.1 WUS and Wetlands

The federal Clean Water Act (CWA) establishes the structure for regulating discharges of pollutants into the WUS and regulating water quality standards for surface waters. WUS include unvegetated ponds, seasonal pools, and perennial, intermittent, and ephemeral stream channels. Wetlands are a subset of WUS and support a prevalence of vegetation typically adapted for life in saturated soil conditions (USACE 2012).

The federal Clean Water Act (CWA) as well as other regulations requires transportation projects to minimize, avoid, or reduce WUS, including wetland impacts. The following regulations and guidance apply to WUS and wetlands:

- Section 404 of the CWA- Any project activities that result in the potential discharge of dredged or fill material into WUS, including wetlands, require a permit from the U. S. Army Corps of Engineers (USACE).
- Executive Order 11990, Protection of Wetlands, and DOT Order 5660.1A, Preservation of the Nation's Wetlands- This order requires that transportation projects and facilities employ practicable measures to minimize, avoid, or reduce impacts to wetlands during the planning and construction phases.
- Federal Compensatory Mitigation Rule (33 CFR Part 322) The Environmental Protection Agency (EPA) and the USACE require a hierarchy of preferred mitigation for unavoidable impacts to WUS and wetlands. The EPA and USACE prefer compensatory mitigation in the following order: mitigation banks, in-lieu fee, permittee responsible mitigation.
- Section 401 of the Clean Water Act- Before the USACE can issue a Section 404 permit, the Maryland Department of the Environment (MDE) must issue a Section 401 Water Quality Certification, which is a finding that the project complies with the State's water quality standards.
- Maryland Nontidal Wetlands Protection Act- The MDE issues permits for project activities affecting nontidal wetlands and their vegetated 25-foot buffer.
- Waterway and 100-year Floodplain Construction Regulations- Authorization from MDE is required for activities affecting surface waters and 100-year floodplains. These activities may involve bridges or culverts, excavation or filling, channelization, changing the current course or cross section of any stream, and temporary construction within the 100-year floodplain.

Because of the length of time between the AA/DEIS and FEIS, and because of shifts in the Preferred Alternative, the FEIS phase of the project included an updated assessment of WUS, including wetlands. This updated assessment focused on WUS in the vicinity of the Preferred Alternative. Information on potential WUS and wetlands within the study area were gathered from published sources including the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps and NRCS Soil Surveys for Prince George's and Montgomery Counties.

The study area was field investigated for potential WUS and wetlands. Wetland delineations were conducted between December 2011 and April 2012 to verify and supplement data sources in accordance

with the Regional Supplements to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version 2.0 (USACE 2010) and Eastern Mountains and Piedmont Region (USACE 2010).

All identified WUS and wetlands were classified according to A Classification of Wetland and Deep-Water Habitats in the United States (USFWS 1979). The wetland indicator status of the observed vegetation was identified using the National List of Plant Species That Occur in Wetlands: Region 1 – Northeast (USFWS 1988).

Wetland functions and values were assessed for all wetlands greater than one-half acre in size using the USACE New England Method as presented in *The Highway Methodology Workbook Supplement* — *Wetland Functions and Values; A Descriptive Approach* (USACE 1999). This method provides a framework for assessment that relies on the presence of certain physical characteristics broadly understood to indicate the presence of related functions, along with best professional judgment of an experienced wetland scientist. Functions/values assessed using this methodology include groundwater recharge/discharge, floodflow alteration, fish and shellfish habitat, sediment/toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, wildlife habitat, recreation, educational/scientific value, uniqueness/heritage, visual quality/aesthetics, and endangered species habitat. For smaller wetlands, a formal analysis of functions and values was not conducted; however, observed functions and values were noted based on the professional experience of the wetland scientists performing the delineations.

The relative extent to which a particular function/value is potentially being provided was evaluated by reviewing a comprehensive list of qualifiers and determining the applicability of each, using a combination of field data, mapping, and best professional judgment. Results were recorded on a Wetland Function-Value Evaluation Form (see Appendix C). This approach was only undertaken for functions/values determined to be "suitable", based on the characteristics of a given wetland. For example, fish and shellfish habitat is a function/value that is not suitable for consideration among wetlands without permanent aquatic habitat. A function/value was said to be "principal" if more than 50 percent of the potential qualifiers were met. The threshold of 50 percent was established in collaboration with the USACE, MDE, and USFWS during the permitting process for projects throughout the State of Maryland. For wetlands less than one half acre, a formal analysis was not conducted. Rather, relevant functions/values were noted on the wetland field data sheets using best professional judgment only.

Based on EPA and USACE guidance, the agencies will assert jurisdiction over the following WUS:

- Traditional navigable waterways (TNWs)
- Wetlands adjacent to TNWs
- Non-navigable tributaries of TNWs that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least three months of the year
- Wetlands that abut such tributaries

The agencies will determine jurisdiction on a case-by-case basis over the following waters after a basis analysis has been performed to determine whether they have a significant nexus with a TNW:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to, but that do not directly abut, a relatively permanent non-navigable tributary

A significant nexus evaluation (SNE) will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream TNWs. As a matter of policy, not law, the USACE requires performing a SNE on all intermittent non-navigable (not perennial) tributaries and their adjacent wetlands, even if the tributary's flow may be relatively permanent.

Wetland Determination Data Forms and Stream Features Field Sheets were completed in the field for each numbered wetland and waterway, as well as adjacent uplands from sampled test plots (see Appendix D). Data recorded included dominant vegetation, hydrologic indicators, and hydric soil indicators. Mapped soil types were documented using NRCS soil surveys and used to support soil profile descriptions in the field. Hydric soil indicators were assessed using the Field Indicators of Hydric Soils in the United States (USDA 1998). Soil color was identified using the Munsell Color Chart handbook (Munsell 1975).

To gain agency concurrence on field-identified WUS and wetland boundaries, USACE and MDE agency field reviews were conducted on May 8 and 9, 2012. The wetlands and waterways described in Section 3.1 reflect the results of these field reviews and agency concurrence with the boundaries as shown. An additional field review was conducted on July 30, 2013 to review additional wetlands and waterways that had been identified since the 2012 field reviews. Minutes of the agency field reviews and corresponding maps are provided in Appendix E.

Based on subsequent coordination with the USACE, the MTA anticipates the USACE will provide an Approved Jurisdictional Determination¹ for WUS and wetlands within the study area by late September, 2013.

2.2 Surface Waters

Under the CWA, the EPA has implemented pollution control programs and set water quality standards for all contaminants in surface waters. The CWA mandates that the State establish total maximum daily loads (TMDL) in order to bring existing water quality up to minimum established water quality standards in streams that have been categorized as "impaired." A TMDL is an estimate of the maximum amount of a pollutant that a given waterbody can absorb without violating environmental water quality standards (MDE 2011). The State of Maryland has established water quality standards for the protection of public health or welfare, simultaneously providing enhancement of water quality and protection of aquatic resources. Additional regulations apply to streams that are designated as scenic or wild, either through the federal or state designation, or navigable. The following regulations and standards apply to streams and water quality:

• Section 303 (d) of the Clean Water Act- This section of the CWA mandates that the State establish total maximum daily loads (TMDLs), in order to bring existing water quality up to minimum

¹ Approved Jurisdictional Determinations (JDs) are used by the USACE to help implement Section 404 of the CWA and Sections 9 and 10 of the RHA. An approved JD is an official USACE determination that jurisdictional "waters of the United States," or "navigable waters of the United States," or both, are either present or absent on a particular site. An approved JD precisely identifies the limits of those waters on the project site determined to be jurisdictional under the CWA/RHA. (See 33 C.F.R. 331.2.)

established water quality standards in streams that have been categorized as "impaired". A TMDL is an estimate of the maximum amount of a pollutant that a given waterbody can absorb without violating environmental water quality standards (MDE 2011). Category 5 of Maryland's Surface Integrated Report of Surface Water Quality, historically known as the 303 (d) list, is the current list of impaired stream segments. Surface water is typically analyzed for chemical composition and is compared to the standard level of water quality established by the CWA.

- MDE Water Quality Standards- MDE defines the goals for a water body by designating its uses, setting criteria to measure attainment of those uses, and establishing policies to protect water quality from pollutants.
- **Federal Wild and Scenic River Act** This act was established to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development.
- Maryland Scenic and Wild Rivers Act of 1968- A Scenic or Wild River is a river that possesses outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar value(s). The Maryland Department of Natural Resources (MDNR) program regulates current and future use and development of rivers designated as Scenic or Wild, tributaries thereto, and adjacent land areas, in order to provide protection of their inherent qualities and characteristics, and to protect and maintain the high water quality within such rivers.
- Section 10 of the Rivers and Harbors Appropriation Act of 1899- The USACE regulates structures that are located in, under or over navigable waters of the U.S. under this Act. "Navigable waters of the United States are those waters that are subject to ebb and flow of the tide and/or are presently used or have been used in the past or may be susceptible for use to transport interstate or foreign commerce" (33 C.F. R. Part 329.4).

Data for the chemical characteristics of existing water supplies within project-area watersheds were gathered from the MDNR, the Montgomery County Department of Environmental Protection (MCDEP), the Maryland Biological Stream Survey (MBSS), and the Prince George's Department of Environmental Resources (PGDER). Existing data were based on studies completed over many years; however, only data collected since 2000 were considered current. The MDE has established standards regarding water quality, with parameters based on designated Stream Use Classification. These standards are listed in the COMAR 26.08.02.01-.03—Water. The State has developed and the EPA has approved TMDLs for the overall Chesapeake Bay watershed including the Purple Line study area. The study area streams that are classified as impaired were identified in Maryland's Integrated Report of Surface Water Quality (MDE 2010).

2.3 Floodplains

Floodplains are regulated to minimize flooding impacts on upstream and downstream properties, and to avoid or minimize impacts to floodplains. The following requirements apply to floodplains:

- USDOT Order 5650.2, "Floodplain Management and Protection"- Prescribes policies and
 procedures for ensuring that proper consideration is given to the avoidance and mitigation of adverse
 effects to regulated floodplains.
- Executive Order 11988, "Floodplain Management," requires federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and

- modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.
- MDE 100-Year Floodplain Construction Regulations- These regulations assure that activities in a 100- year floodplain do not create flooding on upstream or downstream property. Authorization from MDE is required for project activities, including bridges or culverts and temporary construction, affecting 100-year floodplains.

Regulated floodplains within the project study area were identified based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) used in conjunction with GIS mapping.

2.4 Groundwater and Hydrogeology

Information regarding groundwater resources and existing hydrology within the study area was gathered from available published data sources, including the United States Geological Survey (USGS), Maryland Geological Survey (MGS), and MDE.

2.5 Aquatic Biota and Habitat

Aquatic biota and habitat within project area surface waters are governed by the same regulations as surface waters as both are a component.

- COMAR 26.08.02.08- Stream Segment Designations (MDE 2007)- The MDE has established designated uses for streams in Maryland to attain or maintain water quality standards to protect aquatic resources. Under this regulation, MDE also regulates in-stream construction for the protection of aquatic habitat and fisheries resources during certain periods of the year, depending upon the designated use of the stream.
- The Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (MSRA) requires the National Marine Fisheries Service (NMFS) to integrate NEPA and the fisheries management process for environmental review and to regulate project effects to marine habitat and fisheries resources.
- **Section 404/401 of the Clean Water Act** This act is regulated by the USACE and MDE for impacts to streams and consequently, the aquatic biota and habitat within them.

3. Affected Environment

3.1 WUS and Wetlands

Field investigations identified 48 WUS and wetlands (33 streams and 15 wetlands), shown in Figure 1. Most stream systems located within developed areas have been relocated, ditched, or channelized to accommodate runoff from adjacent roadways and the Georgetown Branch Interim Trail. The larger streams (such as Sligo Creek, Rock Creek, Northwest Branch, and Northeast Branch) are channelized near roadway bridge crossings but remain stable and without channelization upstream and downstream of the transitway alignment.

Most wetlands in the study area have been degraded by road encroachments and vegetation removal. Despite the high degree of disturbance, these wetland areas continue to provide some limited functions including groundwater discharge/ recharge, sediment/toxicant retention, nutrient removal, and wildlife habitat. The least affected and highest functioning wetlands in the study area are vegetated systems located in the forested floodplain of Rock Creek (Wetland GB-8).

Each of the WUS and wetlands identified during the field investigation are described in detail below and summarized in Table 1. Areas that contained only vegetated wetland resources are denoted as wetlands; areas identified as perennial and intermittent streams or ephemeral channels are labeled as waterways.

Waterway WUS GB-1 is the uppermost reach of Coquelin Run, which originates just south of the southern end of Pearl Street and flows east along the Capital Crescent Trail and under the trail to join the mainstem of Coquelin Run. This stream begins as an intermittent riverine system with a mud bottom (R4SB5) and becomes perennial (R2UB1/2) as it flows under the road to join the mainstem. The channel has been straightened along the trail and is fed by a partially concrete-lined stormwater outfall classified as an ephemeral channel. The intermittent stream is about seven feet wide and four feet deep, while the ephemeral channel is about six feet wide and three feet deep. Approximately one half inch of flowing water was present in the main channel at the time of the field visit, while negligible flow was present in the ephemeral channel. Habitat complexity was considered very poor in this system due to the absence of stable habitat, shallow flows, heavy silt deposition, and moderate bank erosion in the main channel. The perennial portion of the stream is approximately ten feet wide with a channel depth of five feet. During the site visit, the stream was approximately one foot deep. Habitat complexity was considered moderate and characterized by riffle/pool sequencing and undercut banks.

Waterway WUS GB-2 is an unnamed tributary that originates within the Columbia Country Club golf course and flows south under the Capital Crescent Trail, eventually joining Coquelin Run and ultimately, Rock Creek. This stream is classified as an intermittent riverine system with a mud substrate (R4SB5). The width and depth of the channel are eight and three and a half feet, respectively. At the time of the field visit, less than one inch of flowing water was evident within the channel. The stream is channelized near the culvert as it flows south under the trail. Habitat complexity was considered very poor due to a lack of stable habitat and shallow flows.

Figure 1. Wetlands, Waterways and Floodplains

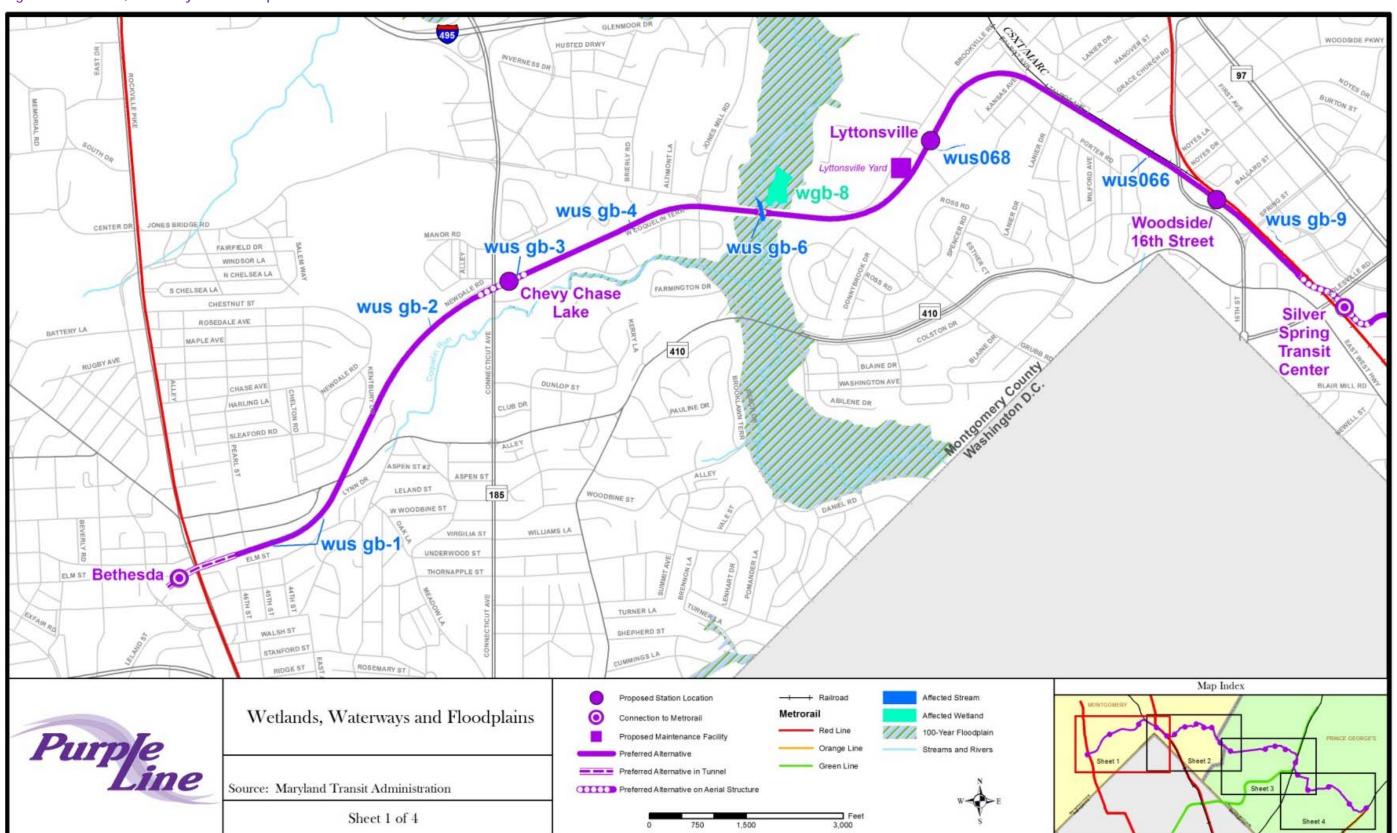


Figure 1. Wetlands, Waterways and Floodplains (continued)

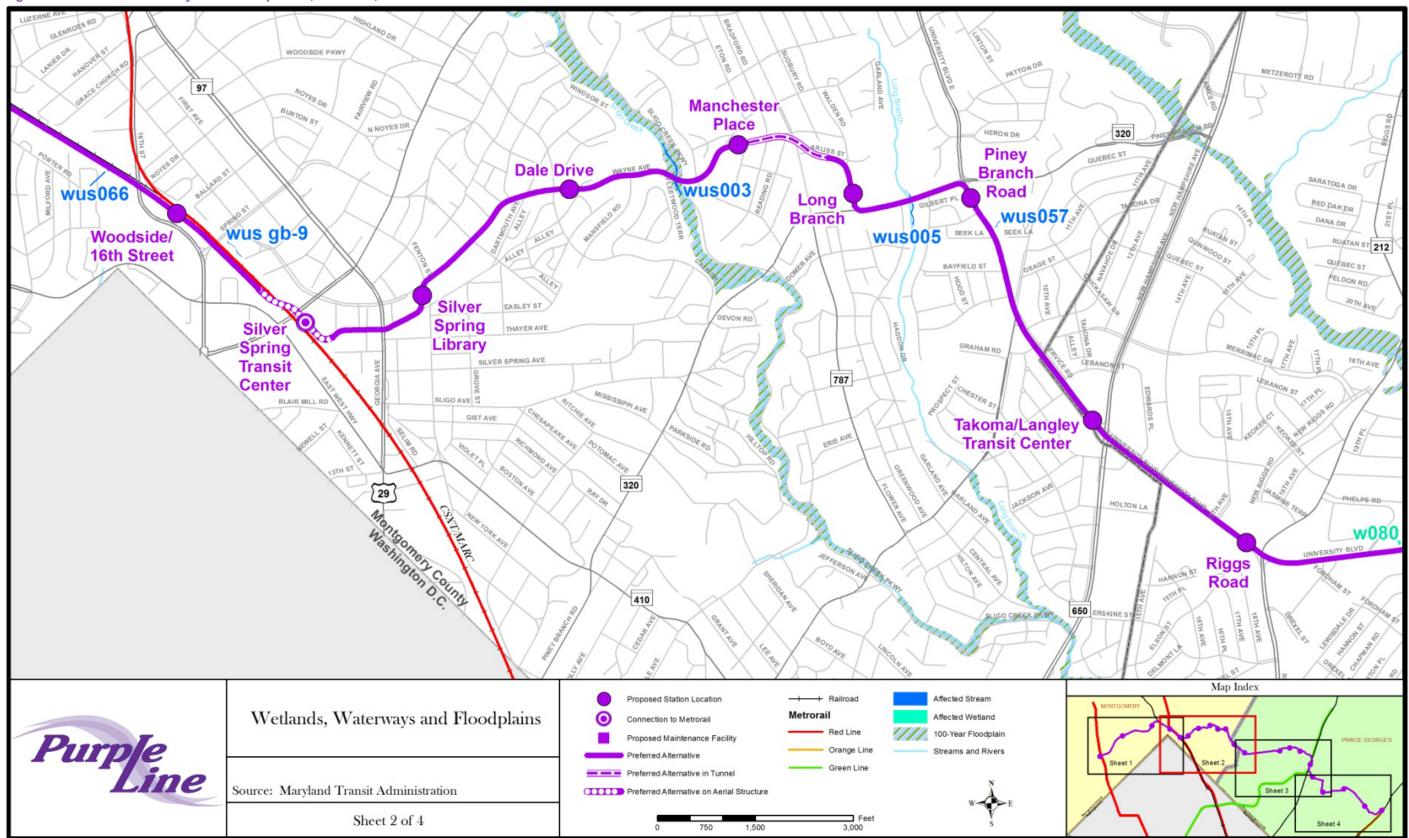


Figure 1. Wetlands, Waterways and Floodplains (continued)

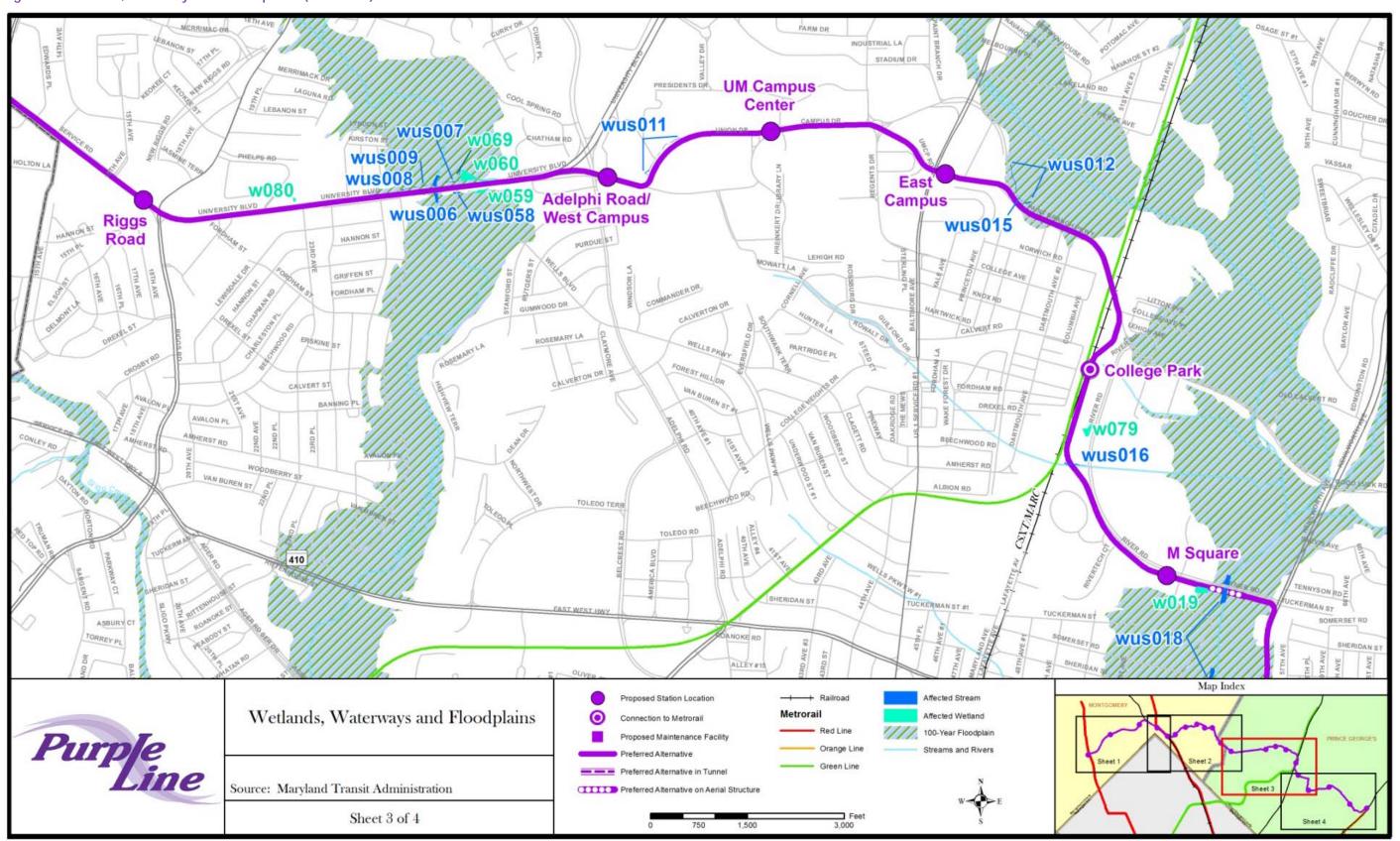


Figure 1. Wetlands, Waterways and Floodplains (continued)

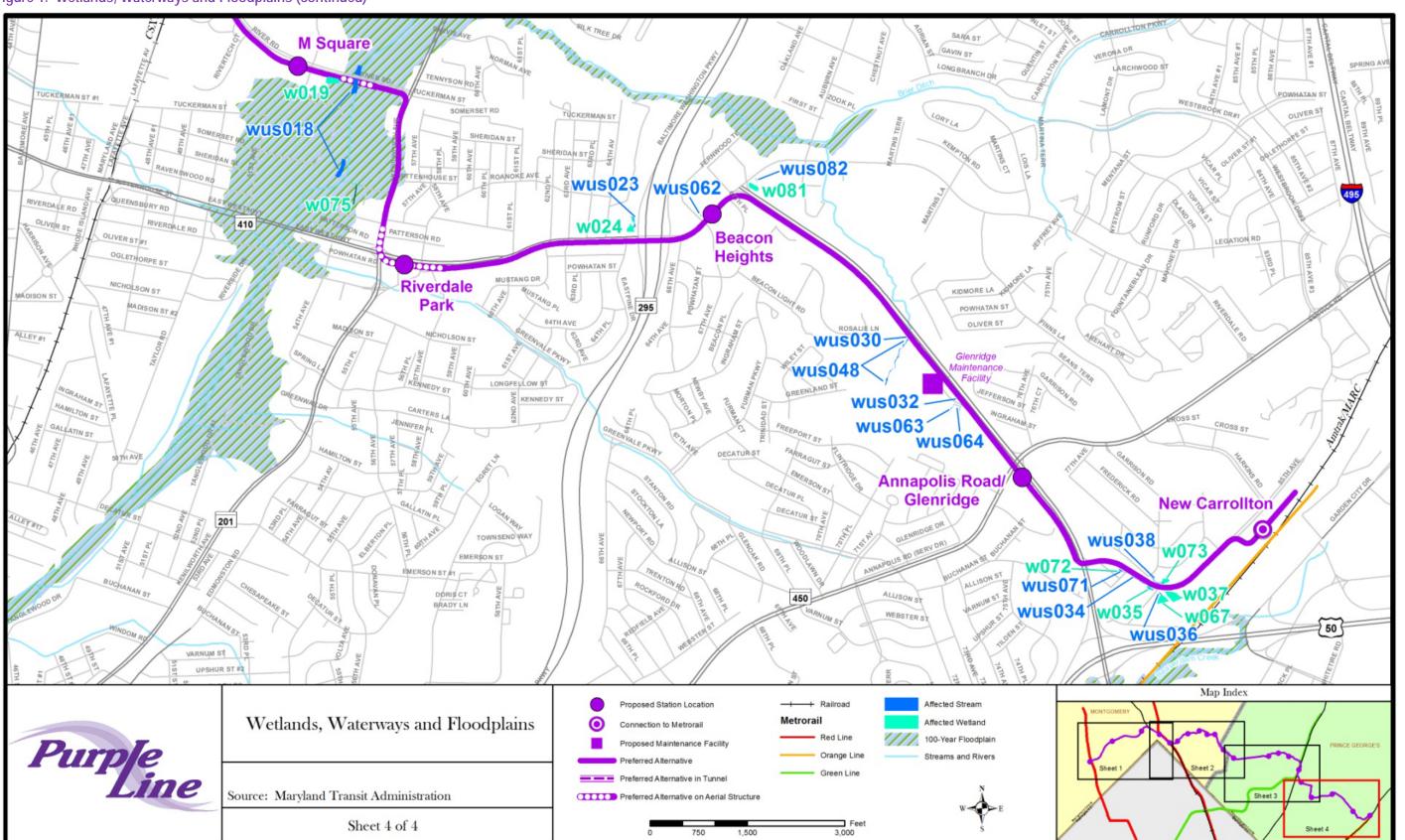


Table 1. WUS and Wetland within Study Area

| | | | | Vegetation | | | | |
|----------------------|-------------------------|---|--|--|--|---|--|--|
| Wetland Number | Cowardin Classification | Hydrology | Common Name | Common Name Scientific Name Indicator Status | | Soils | Principal Functions | |
| WUS GB-1 | R4SB5/R2UB1/2 Ephemeral | n/a | n/a | n/a | n/a | n/a | n/a | |
| WUS GB-2 | R4SB5 | n/a | n/a | n/a | n/a | n/a | n/a | |
| WUS GB-3 | R2UB3/4 | n/a | n/a | n/a | n/a | n/a | n/a | |
| WUS GB-4 | R4SB3/4 | n/a | n/a | n/a | n/a | n/a | n/a | |
| WUS GB-6 | R2UB1 | n/a | n/a | n/a | n/a | n/a | n/a | |
| Wetland GB-8 | PFO1E/F | Surface Water, High Water Table, Saturation, Water-Stained Leaves, Drainage Patterns, Crayfish Burrows, Saturation on Aerial, Stunted or Stressed Plants | green ash box elder American elm common buttonbush broadleaf cattail sweet woodreed | Fraxinus pennsylvanica Acer negundo Ulmus americana Cephalanthus occidentalis Typha latifolia Cinna arundinacea | FACW FAC FACW OBL OBL FACW | Codorus silt loam; Depleted Matrix (F3); 6-12 inches of 10YR5/2 silty clay loam with 7.5YR4/6 redox concentrations | Groundwater Recharge/ Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Wildlife Habitat, Recreation, Uniqueness/ Heritage, Visual | |
| | | | arrowleaf tearthumb | Polygonum sagittatum | OBL | | Quality/Aesthetics | |
| WUS GB-9 | R4SB4 | n/a | n/a | n/a | n/a | n/a | n/a | |
| WUS 003 | R2UB1 | n/a | n/a | n/a | n/a | n/a | n/a | |
| WUS 005 | R2UB1/2 | n/a | n/a | n/a | n/a | n/a | n/a | |
| WUS 006 | R2UB2 | n/a | n/a | n/a | n/a | n/a | n/a | |
| WUS 007 | R2UB2 | n/a | n/a | n/a | n/a | n/a | n/a | |
| WUS 008 | R4SB4 | n/a | n/a | n/a | n/a | n/a | n/a | |
| WUS 009 | R4SB3/4 | n/a | n/a | n/a | n/a | n/a | n/a | |
| WUS 011 | R4SB3/4 | n/a | n/a | n/a | n/a | n/a | n/a | |
| WUS 012 | R2UB1/2x | n/a | n/a | n/a | n/a | n/a | n/a | |
| WUS 015 | R2UBx | n/a | n/a | n/a | n/a | n/a | n/a | |
| WUS 016 | R4SB3/4 | n/a | n/a | n/a | n/a | n/a | n/a | |
| WUS 018 | R2UB1/2 | n/a | n/a | n/a | n/a | n/a | n/a | |
| Wetland 019 | POW/PEM1Hx | Surface Water, High Water Table, Saturation, Hydrogen Sulfide Odor | broadleaf cattail common rush Japanese honeysuckle | Typha latifolia Juncus effusus Lonicera japonica | OBL FACW FAC | Codorus-Hatboro-Urban land complex; Soils did not meet hydric soils criteria due to recent creation of wetland | Floodflow Alteration, Groundwater Recharge/ Discharge, Sediment- Toxicant Retention | |
| Waterway WUS 023 | R4SB2/4 | n/a | n/a | n/a | n/a | n/a | n/a | |
| Wetland 024 WTP-1 | PF01A/C | Surface Water, High Water Table, Saturation, Drift Deposits, Water- Stained Leaves | black willow American sycamore green ash northern catalpa sweetgum eastern cottonwood silver maple American elm boxelder Amur honeysuckle sallow sedge Japanese stiltgrass Indian hemp curly dock meadow fescue eastern poison ivy Japanese honeysuckle Virginia creeper | Salix nigra Platanus occidentalis Fraxinus pennsylvanica Catalpa speciosa Liquidambar styraciflua Populus deltoides Acer saccharinum Ulmus americana Acer negundo Lonicera maackii Carex lurida Microstegium vimineum Apocynum cannabinum Rumex crispus Festuca pratensis Toxicodendron radicans Lonicera japonica Parthenocissus quinquefolia | OBL FACW FAC OBL FAC FACU FAC UPL OBL FAC FACU FAC FACU FAC FACU FAC FACU FAC FACU FAC | Christiana-Downer-Urban land complex; Loamy Gleyed Matrix (F2); 10-15 inches of N5/0 sandy clay with 10YR4/6 redox concentrations | Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal | |

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Table 1. WUS and Wetland within Study Area (continued)

| NA | | | | Vegetation | 0." | 5 | |
|--------------------------|-------------------------|---|---|--|--|---|---|
| Wetland Number | Cowardin Classification | Hydrology | Common Name | Scientific Name | Indicator Status | Soils | Principal Functions |
| Wetland 024 WTP-2 | PEM1A/C | Saturation, Geomorphic Position | common reed | Phragmites australis | FACW | Loamy Gleyed Matrix (F2); 10-15 inches of N5/0 with 10YR4/6 redox concentrations | |
| WUS 030 | R4SB2x | n/a | n/a | n/a | n/a | n/a | n/a |
| WUS 032 | R4SB2x | n/a | n/a | n/a | n/a | n/a | n/a |
| WUS 034 | R4SB2x | n/a | n/a | n/a | n/a | n/a | n/a |
| Wetland 035 | PFO1E | Surface Water, Saturation, Drainage Patterns | American sycamore northern catalpa boxelder black willow reed canarygrass smallspike falsenettle Asiatic tearthumb | Platanus occidentalis Catalpa speciosa Acer negundo Salix nigra Phalaris arundinacea Boehmeria cylindrica Polygonum perfoliatum | FACW FAC FACW FACW FACW FACW | Issue-Urban land complex; Depleted Matrix (F3); 2-8 inches of 10YR4/2 silt loam with 7.5YR4/6 redox concentrations | Floodflow Alteration, Sediment- Toxicant Retention, Nutrient Removal |
| WUS 036 | R4SB2x | n/a | n/a | n/a | n/a | n/a | n/a |
| Wetland 037 | PEM1G | Surface Water, Saturation, Water Marks | common reed unknown goldenrod common rush Allegheny blackberry Japanese honeysuckle | Phragmites australis Solidago sp. Juncus effusus Rubus allegheniensis Lonicera japonica | FACW N/A FACW FACU FAC | Issue-Urban land complex; Depleted Matrix (F3); 4-12+ inches of 2.5Y4/2 fine sandy clay with 10YR5/6 redox concentrations | Floodflow Alteration, Sediment- Toxicant Retention, Nutrient Removal, Visual Quality/Aesthetics |
| WUS 038 | R4SB4x | n/a | n/a | n/a | n/a | n/a | n/a |
| WUS 048 | R4SB3/4x | n/a | n/a | n/a | n/a | n/a | n/a |
| WUS 057 | R4SB4x | n/a | n/a | n/a | n/a | n/a | n/a |
| WUS 058 | Ephemeral | n/a | n/a | n/a | n/a | n/a | n/a |
| Wetland 059 Wetland 060 | PFO1E | Surface Water, High Water Table, Saturation, Water Marks, Drift Deposits, Drainage Patterns | green ash eastern cottonwood sweetgum boxelder multiflora rose fig buttercup common rush white avens field pennycress reed canarygrass eastern poison ivy | Fraxinus pennsylvanica Populus deltoides Liquidambar styraciflua Acer negundo Rosa multiflora Ranunculus ficaria Juncus effusus Geum canadense Thlaspi arvense Phalaris arundinacea Toxicodendron radicans | FACW FAC FAC FACU NI FACW FACU NI FACU FACU FACU FACU FACW FAC | Codorus and Hatboro soils; Depleted Matrix (F3); 0-12 inches of 10YR4/1 silt loam with 7.5YR3/4 redox concentrations Codorus and Hatboro soils, | Groundwater Recharge/ Discharge, Sediment-Toxicant Retention, Nutrient Removal, Wildlife Habitat Floodflow Alteration, Sediment- |
| vveiidiiù uou | Proie | Surface Water, Saturation, Sediment Deposits, Drift Deposits, Water-Stained Leaves | sweetgum green ash Chinese privet meadow garlic Japanese honeysuckle multiflora rose black cherry white avens eastern poison ivy Virginia creeper | Liquidambar styraciflua Fraxinus pennsylvanica Ligustrum sinense Allium canadense Lonicera japonica Rosa multiflora Prunus serotina Geum canadense Toxicodendron radicans Parthenocissus quinquefolia | FAC FACU FACU FACU FACU FACU FACU FACU F | Codorus and Hatboro soils, Codorus-Hatboro-Urban land complex, Christiana-Downer-Urban land complex; Depleted Matrix (F3); 0-6 inches of 10YR4/1 silty clay loam with 7.5YR4/6 redox concentrations | Toxicant Retention, Nutrient Removal, Production Export, Wildlife Habitat, Uniqueness/ Heritage, Visual Quality/Aesthetics |
| WUS 062 | Ephemeral | n/a | n/a | n/a | n/a | n/a | n/a |
| WUS 063 | R4SB4x | n/a | n/a | n/a | n/a | n/a | n/a |
| WUS 064 | R4SB4x | n/a | n/a | n/a | n/a | n/a | n/a |
| WUS 066 | R2UB1/2 | n/a | n/a | n/a | n/a | n/a | n/a |

Table 1. WUS and Wetland within Study Area (continued)

| | Wettaria Within Stady Are | · | | Vegetation | | | | |
|----------------|---------------------------|--|--|---|---|---|---|--|
| Wetland Number | Cowardin Classification | Hydrology | Common Name | Scientific Name | Indicator Status | Soils | Principal Functions | |
| Wetland 067 | POW w/PEM1F fringe | Surface Water, High Water Table, Saturation, Inundation on Aerial Imagery, Oxidized Rhizospheres | swamp verbena common rush seedbox woolgrass | Verbena hastata Juncus effusus Ludwigia alternifolia Scirpus cyperinus | FACW FACW FACW FACW | Issue-Urban land complex, Christiana-Downer-Urban land complex; Depleted Matrix (F3); 0-10 inches of 10YR5/2 clay with 7.5YR4/6 redox concentrations along pore linings | Floodflow Alteration, Sediment- Toxicant Retention, Nutrient Removal, Visual Quality/Aesthetics | |
| WUS 068 | R4SB3/4 | n/a | n/a | n/a | n/a | n/a | n/a | |
| Wetland 069 | PEM1A | Sediment Deposits, Sparsely Vegetated Concave Surface, Drainage Patterns | Vegetation not identifiable due to frequent mowing | n/a | n/a | Codorus and Hatboro soils; Redox Dark Surface (F6); 0-4 inches of 10YR3/2 silty clay loam with 7.5YR4/6 redox concentrations | Sediment-Toxicant Retention | |
| WUS 071 | Ephemeral | n/a | n/a | n/a | n/a | n/a | n/a | |
| Wetland 072 | PFO1B | High Water Table, Saturation, Water-stained Leaves, Sphagnum moss | red maple unknown sedge Northern catalpa tapered rosette grass common rush sweetgum Japanese honeysuckle seedbox | Acer rubrum Carex sp. Catalpa speciosa Dichanthelium acuminatum Juncus effusus Liquidambar styraciflua Lonicera japonica Ludwigia alternifolia | FAC n/a FAC FAC FAC FAC FAC | Christiana-Downer-Urban land complex; Depleted Matrix (F3); 0-12+ inches of 10YR6/2 clay with 7.5YR4/6 redox concentrations | Groundwater Recharge/ Discharge | |
| Wetland 073 | PFO1A | Surface Water, Saturation, Drainage Patterns, Geomorphic Position, Shallow Aquitard | silver maple black willow red maple northern catalpa Virginia pine tuliptree sweetgum American sycamore southern arrowwood American elm fig buttercup fowl bluegrass sensitive fern spotted touch-me-not eastern poison ivy Japanese honeysuckle | Acer saccharinum Salix nigra Acer rubrum Catalpa speciosa Pinus virginiana Liriodendron tulipifera Liquidambar styraciflua Platanus occidentalis Viburnum dentatum Ulmus americana Ficaria verna Poa palustris Onoclea sensibilis Impatiens capensis Toxicodendron radicans Lonicera japonica | FAC OBL FAC FACU UPL FACU FAC | Issue-Urban land complex, Christiana-Downer-Urban land complex; Depleted Matrix (F3); 0-3 inches of 2.5Y4/2 sandy clay loam with 7.5YR4/6 redox concentrations | Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Wildlife Habitat | |
| Wetland 075 | PEM1A | Surface Water, Saturation, Drift Deposits, Drainage Patterns, Geomorphic Position | lamp rush unknown sedge spotted touch-me-not multiflora rose eastern poison ivy Japanese honeysuckle | Juncus effusus Carex sp. Impatiens capensis Rosa multiflora Toxicodendron radicans Lonicera japonica | OBL n/a FACW FACU FAC FAC | Codorus-Hatboro-Urban land complex; Redox Dark Surface (F6); 0-8 inches of 10YR3/1 sandy loam with 7.5YR5/6 redox concentrations | Sediment/Toxicant Retention | |

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Table 1. WUS and Wetland within Study Area (continued)

| | | | | Vegetation | | | |
|----------------|-------------------------|----------------------------------|----------------------|-------------------------|------------------|--|--|
| Wetland Number | Cowardin Classification | Hydrology | Common Name | Scientific Name | Indicator Status | Soils | Principal Functions |
| Wetland 079 | PFO1A | Sparsely vegetated concave | red maple | Acer rubrum | FAC | Aquasco-Urban land complex; | Groundwater Recharge/Discharge, |
| | | surface, Geomorphic Position | northern catalpa | Catalpa speciosa | FAC | Depleted Matrix (F3), Redox Dark | Floodflow Alteration, Wildlife Habitat |
| | | | sweetgum | Liquidambar styraciflua | FAC | Surface (F6); | |
| | | | American elm | Ulmus americana | FAC | 0-6 inches of 2.5Y3/2 loam with | |
| | | | black willow | Salix nigra | OBL | 10YR4/6 redox concentrations, 6-15 | |
| | | | white oak | Quercus alba | FACU | inches of 10YR6/2 silty clay loam with | |
| | | | meadow garlic | Allium vineale | FACU | 10YR6/8 redox concentrations | |
| | | | eastern poison ivy | Toxicodendron radicans | FAC | | |
| | | | Japanese honeysuckle | Lonicera japonica | FAC | | |
| Wetland 080 | PEM1C | Surface Water, Saturation, | lamp rush | Juncus effusus | OBL | Sassafras-Urban land complex; | Sediment/Toxicant Retention |
| | | Sediment Deposits, Algal Mat or | knotty-leaf rush | Juncus acuminatus | OBL | Depleted Matrix (F3); | |
| | | Crust, | common fox sedge | Carex vulpinoidea | FACW | 0-6 inches of 10YR4/2 silt loam with | |
| | | Inundation Visible on Aerial | unknown sedge | Carex sp. | n/a | 7.5YR4/6 redox concentrations | |
| | | Imagery, Geomorphic Position, | blunt spikerush | Eleocharis obtusa | OBL | | |
| | | Shallow Aquitard | curly dock | Rumex crispus | FAC | | |
| | | | seedbox | Ludwigia alternifolia | OBL | | |
| | | | meadow fescue | Festuca pratensis | FACU | | |
| | | | unknown goldenrod | Solidago sp. | n/a | | |
| | | | Indian hemp | Apocynum cannabinum | FACU | | |
| Wetland 081 | PEM1A/C | Surface Water, High Water Table, | boxelder | Acer negundo | FAC | Udorthents, Christiana-Downer- | Groundwater Recharge/Discharge, |
| | | Saturation | red maple | Acer rubrum | FAC | Urban land complex | Floodflow Alteration, |
| | | | broadleaf cattail | Typha latifolia | OBL | Soils could not be assessed due to | Sediment/Toxicant Retention |
| | | | | - | | the presence of a fence around the | |
| | | | | | | perimeter of the wetland. Soils are | |
| | | | | | | assumed to be hydric based on the | |
| - | | | | | | presence of other indicators. | |
| WUS 082 | R4SB2 | n/a | n/a | n/a | n/a | n/a | n/a |

Waterway WUS GB-3 is an unnamed tributary that originates near the intersection of Manor Road and Connecticut Avenue, and flows south under the Capital Crescent Trail before joining Coquelin Run and ultimately, Rock Creek. This stream is classified as an intermittent riverine system with a gravel/sand bottom (R4SB3/4). The width and depth of the channel are three and four feet, respectively. At the time of the field visit, approximately two inches of flowing water was evident within the channel, which has been heavily manipulated to accommodate development. Waterway WUS GB-3 is culverted both upstream and downstream of the study area, but the channel remains relatively natural near the Capital Crescent Trail bridge crossing. Habitat complexity was considered poor due to a lack of stable habitat; although some leaf pack habitat was present.

Waterway WUS GB-4 is an unnamed tributary that originates near Brierly Court, just north of the Capital Crescent Trail, and flows under the trail before joining Coquelin Run and ultimately Rock Creek. This stream is classified as an intermittent riverine system with a gravel/sand bottom (R4SB3/4). The width and depth of the channel are eight and three feet, respectively. At the time of the field visit, approximately two inches of flowing water was evident within the channel. Waterway WUS GB-4 is culverted under the trail but remains natural both upstream and downstream of the bridge. Habitat complexity was considered poor to average due to the presence of some stable habitat in the form of undercut banks and rootwads, although banks were slumping in some areas and silt deposition was moderate throughout.

Waterway WUS GB-6 is the mainstem of Rock Creek where it flows under the Capital Crescent Trail. This stream is classified as a lower perennial riverine system with an unconsolidated bottom consisting of cobble and gravel (R2UB1). The average channel width and depth are 60 feet and 5 feet, respectively. During the field visit, the average water depth was one and a half feet. The stream has been channelized to flow under the trail, and a bridge pier exists in the center of the stream. Habitat complexity was considered average due to the presence of deep pools, but stable cover was scarce and few riffle-pool sequences were observed. Silt deposition was heavy, and bank erosion was moderate.

Wetland GB-8 is located north of the Capital Crescent Trail, immediately east of Rock Creek. This wetland flows into Rock Creek through a pipe situated under the path that parallels the western edge of the wetland. Wetland GB-8 is classified as palustrine forested with a seasonally flooded water regime, with some areas being semipermanently flooded (PFO1E/F). Indicators of wetland hydrology observed during the site visit were abundant, including up to one half inch of surface water, a high water table, saturation at the soil surface, water-stained leaves, drainage patterns, crayfish burrows, and stunted or stressed plants. Aerial imagery of the site also showed inundation. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species identified within the wetland test plot (WTP 8-1) are considered FAC, FACW, or OBL. The dominant vegetation included *Acer negundo* (boxelder), Cephalanthus occidentalis (common buttonbush), Cinna arundinacea (sweet woodreed), Fraxinus pennsylvanica (green ash), Polygonum sagittatum (arrowleaf tearthumb), Typha latifolia (broadleaf cattail), and *Ulmus americana* (American elm). Soils in the wetland are mapped as Codorus silt loam, which is not listed as hydric by NRCS. However, soil samples met the Depleted Matrix (F3) hydric soil indicator at a depth of zero to six inches, with a matrix color of 10YR4/2 and redox concentrations of 7.5YR4/6. Based on the New England method, the principal functions/values likely provided by this wetland include groundwater recharge/discharge, floodflow alteration, sediment/toxicant retention, nutrient removal, production export, wildlife habitat, recreation, uniqueness/heritage, and visual quality/aesthetics.

Waterway WUS GB-9 is an unnamed tributary that appears to flow west via a pipe to a tributary to Rock Creek. This stream is classified as an intermittent riverine system with a sand substrate (R4SB4). The channel is natural in the vicinity of the study area but has undergone significant manipulations downstream. Width and depth of the channel are eight and four feet, respectively. At the time of the field visit, less than one inch of flowing water was observed. Habitat complexity was considered poor due to shallow flows and a lack of stable habitat, as well as heavy silt deposition throughout the assessed reach.

Waterway WUS 003 is the mainstem of Sligo Creek where it flows south under Wayne Avenue. This stream is classified as a lower perennial riverine system with an unconsolidated cobble-gravel bottom (R2UB1). The channel is natural up and downstream of the Wayne Avenue bridge crossing, with an average width and depth of 15 and five feet, respectively. Approximately one foot of flowing water was present at the time of the field visit. Habitat complexity was considered average due to the presence of riffle-run complexes and leaf pack habitat, as well as only minor silt deposition.

Waterway WUS 005 is the mainstem of Long Branch, a tributary of Sligo Creek, where it flows south under Piney Branch Road near Garland Avenue. This stream is classified as a lower perennial riverine system with an unconsolidated sand-gravel-cobble bottom (R2UB1/2). The channel is natural up and downstream of the Piney Branch Road bridge crossing, with an average width and depth of 10 and three feet, respectively. Approximately four inches of flowing water was present at the time of the field visit. Habitat complexity was considered average due to the presence of riffle-run complexes, coarse woody debris, and rootmat habitat, as well as only minor silt deposition.

Waterway WUS 006 is the mainstem of Northwest Branch, which flows south through the study area, under MD 193. This stream is classified as a lower perennial riverine system with a sand substrate (R2UB2). The average width and depth of the stream are 25 and five feet, respectively. During the field visit, six inches of flowing water was present within the channel. Habitat complexity was considered poor to average due to an absence of clean riffles and few deep pools, as well as heavy silt deposition near the bridge crossing.

Waterway WUS 007 is an unnamed tributary that originates on the east side of Adelphi Manor Park, just north of MD193, and flows west under a private driveway into Northwest Branch. This stream is classified as a lower perennial riverine system with a sand substrate (R2UB2). The channel has been channelized and culverted, with average dimensions of approximately five and a half feet wide and four feet deep. During the field visit, approximately two inches of water were present in the channel. Habitat complexity was considered poor due to heavy silt deposition, and a lack of deep pools or clean riffles.

Waterway WUS 008 is an unnamed tributary that flows east from Lyndon Street through Adelphi Manor Park to join Northwest Branch along the north side of MD 193. This stream is classified as an intermittent riverine system with a sand substrate (R4SB4). The channel has been channelized and directed into a culvert, and consists of an average width and depth of approximately three and a half and three feet, respectively. During the field visit, approximately two inches of flowing water were present in the channel. Habitat complexity was considered poor due to moderate silt deposition and shallow flows.

Waterway WUS 009 is an unnamed tributary that originates within a stormwater management pond in the southeast corner of Adelphi Manor Park and flows southeast into Waterway WUS-008 (described above). This stream is classified as an intermittent riverine system with a gravel-sand substrate (R4SB3/4). The channel was channelized and rip-rapped at the upstream end to accommodate high flows during storm events. Average width and depth of the channel are both about two feet; approximately one

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inch of flowing water was present during the field visit. Habitat complexity was considered poor due to shallow flows and lack of stable habitat.

Waterway WUS 011 is an unnamed tributary that originates north of a large parking lot east of Presidential Drive on the University of Maryland College Park campus, and then flows south into a pipe which most likely drains to Northwest Branch. This stream is classified as an intermittent riverine system with a gravel/sand bottom (R4SB3/4). The channel has been straightened and a portion of it has been redirected into a manmade stormwater pond. Average width and depth of the channel are three feet and one foot, respectively, and about four inches of flowing water was present during the field visit. Despite only minor silt deposition, habitat complexity was poor due to a lack of stable habitat within the assessed reach.

Waterway WUS 012 is an unnamed tributary that originates about 600 feet northeast of the intersection of Paint Branch Parkway and US Route 1, then flows southeast into Paint Branch. This stream is classified as lower perennial with a gravel/sand substrate (R2UB1/2x) but has been manipulated in some places in order to straighten and/or stabilize the channel with riprap. Furthermore, a stormwater outfall is present within the more southerly portion of the assessed reach. Width and depth of the channel are 10 and two and a half feet, respectively, and about two inches of flowing water was present in the channel during the field visit. Habitat complexity was considered average based on the presence of some deep pools and undercut banks, although silt deposition was heavy in places.

Waterway WUS 015 flows east into the WUS 012 from the north side of Paint Branch Parkway. The stream is classified as lower perennial with a rip-rap substrate (R2UBx). The average channel width of the stream is five feet with a channel depth of one foot. During the site visit, approximately two inches of water was present within the channel. Habitat complexity is low due to the rip-rap channel and the short distance from the outfall to the confluence.

Waterway WUS016 is an unnamed tributary that originates just east of a railroad berm near the College Park metro station and flows east under River Road toward Northeast Branch. This stream is classified as an intermittent riverine system with a gravel/sand bottom (R4SB3/4). The channel has been straightened, and has an average width and depth of five and two feet, respectively. There was approximately two inches of flowing water during the field visit. Habitat complexity was considered very poor due to shallow flows, lack of structure, and moderate silt deposition.

Waterway WUS 018 is the mainstem of Northeast Branch, which flows south through the study area. This stream is classified as a lower perennial riverine system with a gravel/sand substrate (R2UB1/2). The channel has been straightened in the past, with a width and depth of 55 and seven feet, respectively. Approximately 12 inches of flowing water was present during the field visit. Habitat complexity was considered average due to the presence of riffle-pool sequences and minor silt deposition.

Wetland 019 is located southeast of the intersection of River Road and University Research Court, adjacent to Northeast Branch. This wetland is a vegetated stormwater pond that is classified as palustrine open water-emergent with a permanently flooded water regime (POW/PEM1Hx). Indicators of wetland hydrology observed during the field visit included up to 0.5 inch of surface water, saturation at the soil surface, a high water table, and hydrogen sulfide odor. The only dominant plant that occurred within the wetland test plot (WTP 19-1) was broadleaf cattail, which is considered OBL. Therefore, the requirement for hydrophytic vegetation was satisfied. Soils in the wetland are mapped as Codorus-Hatboro-Urban land complex, which is not listed as hydric by NRCS. Soil samples did not satisfy the hydric soil criteria due to the recent creation of the wetland, but hydric soils are expected to develop over time given the

presence of both wetland hydrology and hydrophytic vegetation. Based on best professional judgment, functions/values likely provided by this wetland include floodflow alteration, groundwater recharge/discharge, and sediment-toxicant retention.

Waterway WUS 023 is an unnamed tributary that flows north from a culvert under MD 410 and eventually into Brier Ditch about 0.4 mile north of the study area. Waterway WUS 023 primarily conveys stormflows from adjacent roadways and developments, but is likely also supported by longer duration subsurface flows from Wetland 024 (described below). Thus, it is classified as intermittent with a sand/rip-rap substrate (R4SB2/4). During the field visit, the channel was approximately five feet wide and six inches deep, and an average of three inches of flowing water was present. Habitat complexity was virtually absent, although some low-quality pools and riffles were observed.

Wetland 024 consists of a stormwater retention basin and streamside terrace which both abut Waterway WUS 023, occurring immediately north of the intersection of Eastpine Drive and MD 410. This system contains both emergent and forest vegetation, both of which maintain temporarily to seasonally flooded hydrologic regimes (PEM1A/C, PFO1A/C). In order to best represent observed differences, data were collected at two separate test plots.

The forested portion of Wetland 024, represented by W24-WTP-1, forms a relatively narrow buffer around the center of the stormwater retention basin and extends to the north and east as the floodplain of Waterway WUS 023. During the field visit, hydrologic indicators observed included up to one inch of surface water, a high water table at a depth of six inches, saturation at the soil surface, drift deposits, and water-stained leaves. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species observed within the test plot are considered FAC, FACW, or OBL. These included *Salix nigra* (black willow), *Fraxinus pennsylvanica* (green ash), *Acer saccharinum* (silver maple), *Liquidambar styraciflua* (sweetgum), *Carex lurida* (sallow sedge), *Microstegium vimineum* (Japanese stiltgrass), *Toxicodendron radicans* (eastern poison ivy), and *Parthenocissus quinquefolia* (Virginia creeper). Soils in this portion of the wetland are mapped as Christiana-Downer-Urban land complex, which is not considered hydric by NRCS. However, soil samples met the Loamy Gleyed Matrix (F2) hydric soil indicator based on the presence of a layer of N5/0 sandy clay with redox concentrations of 10YR4/6 occurring at a depth of 10 to 15 inches.

The emergent portion of the wetland, which constitutes the wettest part of the stormwater retention basin and a small disturbed area on the floodplain of Waterway WUS 023, is represented by W24-WTP-2. During the field visit, saturated soils were observed at the ground surface. Geomorphic position was confirmed as a secondary indicator of wetland hydrology. Only *Phragmites australis* was present within the 30-foot radius of the test plot, therefore the Rapid Test for Hydrophytic Vegetation was met. Soils within this portion of the wetland are also mapped as Christiana-Downer-Urban land complex, which is not considered hydric by NRCS. However, soil samples met the Loamy Gleyed Matrix (F2) hydric soil indicator based on the presence of a layer of N5/0 sandy clay with redox concentrations of 10YR4/6 occurring at a depth of 10 to 15 inches.

Based on best professional judgment, the primary functions/values associated with this wetland are floodflow alteration, sediment/toxicant retention, and nutrient removal.

Waterway WUS 030 is an unnamed tributary that flows north under MD 410 toward Brier Ditch, a tributary to Northeast Branch. This stream is classified as an intermittent riverine system with a rip-rap lined channel (R4SB2x). The channel has been channelized and stabilized with rip-rap to control erosion from stormwater runoff. Width and depth of the channel are four feet and one foot, respectively; flowing water was not evident during the field visit. Habitat complexity was considered poor due to infrequent flows and a lack of instream structure.

Waterway WUS 032 is an unnamed tributary that flows north under MD 410 toward an unnamed tributary to Brier Ditch and ultimately, Northeast Branch. This stream is classified as an intermittent riverine system with a rip-rap lined bottom (R4SB2x). The channel has been channelized and stabilized with rip-rap to control erosion from stormwater runoff. Width and depth of the channel are four feet and one foot, respectively; flowing water was not evident during the field visit. Habitat complexity was considered poor due to infrequent flows and a lack of instream structure.

Waterway WUS 034 is an unnamed tributary that flows southeast through forested habitat adjacent to MD 410, eventually joining Lower Beaverdam Creek. This stream is classified as an intermittent riverine system with a rip-rap bottom (R4SB2x). The channel has been channelized and stabilized with rip-rap to control erosion from stormwater runoff. Width and depth of the channel are four and a half and three feet, respectively. Approximately three inches of flowing water was present during the field visit. Habitat complexity was poor due to a lack of stable habitat, unvegetated banks, shallow flows, and moderate silt deposition.

Wetland 035 is located immediately west of the intersection of Hanson Oaks Drive and Ellin Road, on the floodplain of Waterway WUS 034. This wetland is classified as palustrine forested with a seasonally flooded/saturated water regime (PFO1E). Indicators of wetland hydrology observed during the field visit included up to four inches of surface water, soil saturation at a depth of six inches, and drainage patterns. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species identified within the wetland test plot (WTP 35-1) are considered FAC, FACW, or OBL. The dominant vegetation included boxelder, *Catalpa speciosa* (northern catalpa), *Phalaris arundinacea* (reed canarygrass), *Platanus occidentalis* (American sycamore), and *Salix nigra* (black willow). Soils in the wetland are mapped as Issue-Urban land complex, which is not listed as hydric by NRCS. Soil samples were confirmed to meet the Depleted Matrix (F3) hydric soil indicator at a depth of two to eight inches with a matrix color of 10YR4/2 and redox concentrations of 7.5YR4/6. Based on best professional judgment, functions/values likely provided by this wetland include floodflow alteration, sediment-toxicant retention, and nutrient removal.

Waterway WUS 036 is an unnamed tributary that receives drainage from Waterway WUS 034 and Wetland 035 via a culvert under Hanson Oaks Drive, and flows into a stormwater management pond complex which then drains to Lower Beaverdam Creek. This stream is classified as an intermittent riverine system with a rip-rap lined bottom (R4SB2x). The channel has been channelized and stabilized with rip-rap to control erosion from stormwater runoff. Width and depth of the channel are three and a half and one and a half feet, respectively. Approximately one inch of flowing water was present during the field visit. Despite only minor silt deposition, habitat complexity was considered poor due to a lack of stable habitat and shallow flows.

Wetland 037 is the second pond forming the aforementioned stormwater management complex, located directly east of Wetland 067. This wetland is classified as palustrine emergent with an intermittently exposed water regime (PEM1G). Indicators of wetland hydrology observed during the field visit included up to six inches of surface water, saturation at the soil surface, and water marks. Based on the dominance

test for hydrophytic vegetation, 100 percent of the dominant species identified within the wetland test plot (WTP 35-1) are considered FAC, FACW, or OBL. The dominant vegetation included *Phragmites australis* (common reed) and *Lonicera japonica* (Japanese honeysuckle). Soils in the wetland are mapped as Issue-Urban land complex, which is not listed as hydric by NRCS. However, soil samples met the Depleted Matrix (F3) hydric soil indicator at a depth of four to 12 inches with a matrix color of 2.5Y4/2 and redox concentrations of 10YR5/6.Based on the New England method, the principal functions/values likely provided by this wetland include floodflow alteration, sediment/toxicant retention, nutrient removal, and visual quality/aesthetics.

Waterway WUS 038 is classified as an intermittent stream with a sand and rip-rap substrate (R4SB4x). The stream parallels the north side of Ellin Road and is bordered by the community of West Lanham Hills to the north. This stream is approximately four feet wide and has a depth of one foot. At the time of the field investigation, approximately two inches of water were present in the channel. Little or no evidence of bank erosion was observed. Stream habitat complexity was low due to a lack of riffle-pool sequences. The forest buffer is dominated by catalpa, *Prunus* sp. (cherry), tulip poplar, poison ivy, and *Vitis* sp. (grape vine), which provide approximately 95 percent shading to the stream.

Waterway WUS 048 is an unnamed tributary that flows north into Waterway WUS 030. This stream is classified as an intermittent riverine system with a rip-rap/sand-gravel bottom (R4SB3/4x). The southern reaches have been channelized and stabilized with rip-rap to control erosion from stormwater runoff, while the more northern portions of the stream are natural. Average width and depth of the channel are fourteen and nine feet, respectively; less than one inch of flowing water was observed during the field visit. Habitat complexity was considered poor due to infrequent flows, failing banks, and a lack of instream structure.

Waterway WUS 057 is an unnamed tributary that originates near MD 193 and flows east toward Northwest Branch. This stream is classified as an intermittent riverine system with a sand bottom (R4SB4x) that was excavated and rip-rap lined, then directed toward a pipe system just outside the study area. The channel was approximately four and a half feet wide and four feet deep during the field visit, and about six inches of flowing water was present. Despite only minor silt deposition, habitat complexity was poor due to a lack of stable habitat within the assessed reach.

Waterway WUS 058 is an ephemeral channel that extends under a private driveway then north under MD 193 into Waterway WUS 007. This stream is considered ephemeral based on the observation of several indicators of an ordinary high water mark. Such indicators included disturbed/washed away leaf litter, sediment deposition, the presence of a wrack line, and scour. Width of the ephemeral channel is five feet with a channel depth of three feet. The average water depth during the site visit was six inches.

Wetland 059 is located on the south side of MD 193, east of and adjacent to Waterway WUS 058 near a three-acre man-made pond. This wetland is classified as palustrine forested with a seasonally flooded/saturated water regime (PFO1E). Indicators of wetland hydrology observed during the field visit included one inch of surface water, saturation at the soil surface, a high water table, water marks, drift deposits, and drainage patterns. Based on the dominance test for hydrophytic vegetation, 75 percent of the dominant species identified within the wetland test plot (WTP 59-1) are considered FAC, FACW, or OBL. The dominant vegetation included boxelder, green ash, *Ranunculus ficaria* (fig buttercup), *Rosa multiflora* (multiflora rose), and *Toxicodendron radicans* (eastern poison ivy). Soils in the wetland are mapped as Codorus and Hatboro soils, which are listed as hydric by NRCS. Soil samples were confirmed to meet the Depleted Matrix (F3) hydric soil indicator throughout the soil profile with a matrix color of 10YR4/1 and redox concentrations of 7.5YR3/4.

Based on best professional judgment, functions/values likely provided by this wetland include groundwater recharge/discharge, sediment-toxicant retention, nutrient removal, and wildlife habitat.

Wetland 060 is located on the north side of MD 193, just east of Waterway WUS 007, which facilitates a surface connection to Northwest Branch. This wetland is classified as palustrine forested with a seasonally flooded/saturated water regime (PFO1E). Indicators of wetland hydrology observed during the field visit included one inch of surface water, saturation at the soil surface, sediment deposits, drift deposits, and water-stained leaves. Based on the dominance test for hydrophytic vegetation, 50 percent of the dominant species identified within the wetland test plot (WTP 60-1) are considered FAC, FACW, or OBL. Vegetation was confirmed to meet the requirement for hydrophytic vegetation based on the prevalence index, which was 3.0. The dominant vegetation included *Allium canadense* (meadow garlic), green ash, *Liquidambar styraciflua* (sweetgum), *Ligustrum sinense* (Chinese privet), *Parthenocissus quinquefolia* (Virginia creeper), multiflora rose, and eastern poison ivy. Soils in the wetland are mapped as Codorus and Hatboro soils, Codorus-Hatboro-Urban complex, and Christiana-Downer-Urban complex, only the first of which is listed as hydric by NRCS. Soil samples met the Depleted Matrix (F3) hydric soil indicator at a depth of zero to six inches with a matrix color of 10YR4/1 and redox concentrations of 7.5YR4/6.

Based on the New England method, the principal functions/values likely provided by this wetland include floodflow alteration, sediment-toxicant retention, nutrient removal, production export, wildlife habitat, uniqueness/heritage, and visual quality/aesthetics.

Waterway WUS 062 is an unnamed tributary that originates south of MD 410 and flows north via a pipe system toward Brier Ditch and ultimately, Northeast Branch. This stream is considered ephemeral based on the observation of several indicators of an ordinary high water mark. Such indicators included disturbed/washed away leaf litter, sediment deposition, destruction of terrestrial vegetation, and the presence of a wrack line. Width and depth of the ephemeral channel are both two feet; flowing water was not evident at the time of the field visit.

Waterway WUS 063 is a channel that flows north under a private road into Waterway WUS 032. This stream is classified as intermittent with a mud and rip-rap lined substrate (R4SB5x). The average channel width and depth are two feet, with an average water depth of less than one half inch. Habitat complexity was low due lack of riffle/pool complexes.

Waterway WUS 064 is an unnamed tributary that converges with Waterway WUS 063 and flows north under a private road into Waterway WUS 032. This stream is classified as intermittent with a sand and rip-rap lined substrate (R4SB4x). The average channel width and depth are two feet, with an average water depth of less than one inch. Habitat complexity was low due lack of riffle/pool complexes.

Waterway WUS 066 is a tributary to Rock Creek which originates just north of the CSX track and flows south under the track via a culvert, then through forested habitat, eventually joining Rock Creek. This stream is classified as a lower perennial riverine system with an unconsolidated sand-gravel bottom (R2UB1/2). The channel is natural with an average width and depth of 10 and four feet, respectively. Approximately six inches of flowing water was present at the time of the field visit. Habitat complexity was considered average due to the presence of some deep pools and riffle-run complexes, as well as only minor silt deposition.

Wetland 067 is located south of Ellin Drive, and receives drainage directly from Waterways WUS 034 and WUS 036. This wetland is part of a stormwater management pond complex consisting of two ponds

that are physically separated by a manmade berm, but remain hydrologically connected by a culvert that was installed underneath the berm. Wetland 067 is classified as palustrine open water with an emergent fringe, and a semipermanently flooded water regime (POW/PEM1F). Hydrologic indicators observed during the field visit included greater than one foot of surface water, a high water table, saturation at the soil surface, and oxidized rhizospheres along living roots. Aerial imagery of the site also showed inundation. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species identified within the wetland test plot (WTP 67-1) were considered FAC, FACW, or OBL. The dominant vegetation included *Juncus effusus* (common rush) and *Ludwigia alternifolia* (seedbox). Soils in the wetland are mapped as Issue-Urban land complex and Christiana-Downer-Urban land complex, neither of which are listed as hydric by NRCS. However, soil samples met the Depleted Matrix (F3) hydric soil indicator with a matrix color of 10YR5/2 and redox concentrations of 7.5YR4/6. Based on the New England method, the principal functions/values likely provided by this wetland include floodflow alteration, sediment/toxicant retention, nutrient removal, and visual quality/aesthetics.

Waterway WUS 068 is a tributary to Rock Creek that begins on the south side of the proposed Lyttonsville facility. The stream is classified as an intermittent stream with a sand/gravel bottom (R4SB3/4). The channel has an average width of six feet and a depth of one foot. Approximately one inch of flowing water was present at the time of the field visit. Habitat complexity was considered very low due to flashy flows.

Wetland 069 is a regularly mowed swale located adjacent to a parking lot just north of MD193 that collects surface runoff and drains into Waterway WUS 007. This wetland is classified as palustrine emergent with a temporarily flooded water regime (PEM1A). During the field visit, sediment deposits were confirmed as a primary indicator of wetland hydrology. Secondary indicators included drainage patterns and a sparsely vegetated concave surface. Vegetation was not identifiable due to frequent mowing, therefore hydrophytic vegetation could not be confirmed. However, it is likely that the species present would satisfy the hydrophytic vegetation criteria if allowed to grow. Soils in the wetland are mapped as Codorus and Hatboro soils, which are listed as hydric by NRCS. Soil samples met the Redox Dark Surface (F6) hydric soil indicator at a depth of zero to four inches with a matrix color of 10YR3/2 and redox concentrations of 7.5YR4/6. Based on best professional judgment, the primary function/value likely provided by this wetland is sediment/toxicant retention.

Waterway WUS 071 is an unnamed tributary along Ellin Road that directs surface runoff into Waterway WUS 034. This channel is considered ephemeral based on the lack of groundwater discharge, sand deposition along a rip-rap substrate, and defined bed and bank features. The channel was manipulated to reduce erosion using rip-rap placement, with dimensions of four feet wide and two feet deep.

Wetland 072 is a small seepage wetland located on a steep, north facing slope along Ellin Road that is classified as palustrine forested wetland with a saturated water regime (PFO1B). This wetland drains directly into Waterway WUS 034. During the field visit, saturation at the soil surface, a high water table, and water-stained leaves constituted primary indicators of wetland hydrology. Sphagnum moss was confirmed as a secondary indicator. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species identified within the wetland test plot (WTP-72-1) are considered FAC, FACW, or OBL. These included red maple, *Carex* sp. (unknown sedge), northern catalpa, *Dichanthelium acuminatum* (tapered rosette grass), sweetgum, seedbox, common rush, and Japanese honeysuckle. Soils in the wetland are mapped as Christiana-Downer-Urban land complex, which is not listed as hydric by NRCS. However, soil samples were confirmed to meet the Depleted Matrix (F3) hydric soil indicator throughout the soil profile, with a matrix color of 10YR6/2 and redox concentrations of 7.5YR4/6. Based

on best professional judgment, the primary function/value likely provided by this wetland is groundwater recharge/discharge.

Wetland 073 is a bowl-shaped depression located immediately northeast of Hanson Oaks Drive and Ellin Road, that abuts Waterway WUS 038. This wetland is classified as palustrine forested with a temporarily flooded hydrologic regime (PFO1A). Wetland 073 is primarily influenced by surface runoff from areas to the north and east, which is perched on top of a shallow clay layer. During the field visit, hydrologic indicators observed included up to an inch of surface water, saturation at the soil surface, drainage patterns, geomorphic position, and a shallow aquitard. Based on the dominance test for hydrophytic vegetation, 75 percent of the dominant species observed within the wetland test plot (WTP-73) are considered FAC, FACW, or OBL. These included *Acer saccharinum* (silver maple), *Salix nigra* (black willow), *Acer rubrum* (red maple), *Pinus virginiana* (Virginia pine), *Liriodendron tulipifera* (tuliptree), *Liquidambar styraciflua* (sweetgum), *Ficaria verna* (fig buttercup), *Poa palustris* (fowl bluegrass), *Toxicodendron radicans* (eastern poison ivy), and *Lonicera japonica* (Japanese honeysuckle). Soils in the wetland are mapped as Christiana-Downer-Urban land complex and Issue-Urban land complex, neither of which are considered hydric by NRCS. However, soil samples met the Depleted Matrix (F3) hydric soil indicator at depths of zero to three and three to 12 or more inches with matrix colors of 2.5Y4/2 and 10YR6/2, respectively, and redox concentrations of 7.5YR4/6.

Based on best professional judgment, the primary functions/values associated with this wetland are floodflow alteration, sediment/toxicant retention, nutrient removal, production export, and wildlife habitat.

Wetland 075 is a linear, maintained roadside ditch along 54th Ave, just west of the 54th Place intersection. This wetland conveys stormwater flows toward Waterway WUS 018 but is sufficiently entrenched to intercept groundwater. This wetland is classified as palustrine emergent with a temporarily flooded hydrologic regime (PEM1A). During the field visit, hydrologic indicators observed included up to five inches of surface water, saturated soils at the soil surface, drift deposits, drainage patterns, and geomorphic position. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species observed within the wetland test plot (W075-WTP-1) are considered FAC, FACW, or OBL. These included *Toxicodendron radicans* (eastern poison ivy) and *Lonicera japonica* (Japanese honeysuckle). An unknown sedge (*Carex* sp.), likely a hydrophyte, accounted for significant areal coverage within the wetland, but could not be positively identified due to a lack of flowering parts. Soils in the wetland are mapped as Codorus-Hatboro-Urban land complex, which is considered hydric by NRCS. Soil samples were confirmed to meet the Redox Dark Surface (F6) hydric soil indicator at a depth of zero to eight inches with a matrix color of 10YR3/1 and redox concentrations of 7.5YR5/6.

Based on best professional judgment, the primary function/value associated with this wetland is sediment/toxicant retention.

Wetland 079 is an isolated depression located immediately west of River Road, about 500 feet north of Waterway WUS 016. This wetland is classified as palustrine forested with a temporarily flooded hydrologic regime (PFO1A). Hydrology in the wetland may be partly supported by a seasonally high groundwater table, but the presence of a manmade berm associated with a stormwater conveyance swale found immediately north of the wetland boundary effectively restricts drainage, causing ponding to be the predominant hydrologic influence. Indicators of wetland hydrology observed during the site visit

included a sparsely vegetated concave surface and geomorphic position. Based on the dominance test for hydrophytic vegetation, 56 percent of the dominant species found within the wetland test plot (W079-WTP-1) are considered FAC, FACW, or OBL. These included *Liquidambar styraciflua* (sweetgum), *Ulmus americana* (American elm), *Allium vineale* (meadow garlic), *Toxicodendron radicans* (eastern poison ivy), and *Lonicera japonica* (Japanese honeysuckle). Soils in the wetland are mapped as Aquasco-Urban land complex, which is not considered hydric by NRCS. However, soil samples met the Redox Dark Surface (F6) and Depleted Matrix (F3) hydric soil indicators with matrix colors of 2.5Y3/2 and 10YR6/2 and redox colors of 10YR4/6 and 10YR6/8 occurring at depths of zero to six and six to 15 or more inches, respectively.

Based on best professional judgment, the primary functions/values provided by this wetland are groundwater recharge/discharge, floodflow alteration, and wildlife habitat.

Wetland 080 is an isolated depression located within the powerline right-of-way on the north side of MD 193, just east of the Phelps Road intersection. This wetland is classified as palustrine emergent with a seasonally flooded hydrologic regime (PEM1C). Indicators of wetland hydrology observed during the field visit included up to eight inches of surface water, saturation at the soil surface, sediment deposits, algal mats, inundation visible on aerial imagery, geomorphic position, and a shallow aquitard. The latter is likely due to soil compaction resulting from continued maintenance activities within the right-of-way. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species found within the wetland test plot (W080-WTP-1) are considered FAC, FACW or OBL. These included *Juncus effusus* (common rush), *Juncus acuminatus* (tapertip rush), *Carex vulpinoidea* (fox sedge), *Eleocharis obtusa* (blunt spikerush), and *Ludwigia palustris* (marsh seedbox). *Carex* sp. (unknown sedge) and *Solidago* sp. (unknown goldenrod) were also dominant, but could not be identified due to a lack of flowering parts; these plants were not included in the dominance calculation. Soils in the wetland are mapped as Sassafras-Urban land complex, which is not considered hydric by NRCS. However, soil samples met the Depleted Matrix (F3) hydric soil indicator at a depth of zero to six inches with a matrix color of 10YR4/2 and redox concentrations of 7.5YR4/6.

Based on best professional judgment, the primary function/value provided by this wetland is sediment/toxicant retention.

Wetland 081 is a stormwater retention pond located adjacent to the eastern side of the MD410-Riverdale Road intersection. This system flows directly into Waterway WUS 082 (described below), which eventually flows into Brier Ditch. Access to the wetland could not be gained during the field work due to the presence of a large fence; therefore, wetland indicators were assessed from the perimeter where possible. The wetland is classified as palustrine emergent with a temporarily to seasonally flooded hydrologic regime (PEM1A/C). During the field visit, approximately one-half-inch of surface water was evident. Saturation at the soil surface and a high water table were assumed to be present. Saturation visible from aerial imagery was confirmed as a secondary indicator of wetland hydrology. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species occurring within the wetland are considered FAC, FACW, or OBL. These included *Acer negundo* (boxelder), *Acer rubrum* (red maple), and *Typha latifolia* (broadleaf cattail). Soils are mapped as Udorthents and Christiana-Downer-Urban land complex, neither of which are considered hydric by NRCS. Hydric soils could not be

formally assessed due to the aforementioned fence, but their presence is assumed based on the strongly hydrophytic plant assemblage and excessive hydroperiod.

Based on best professional judgment, the primary functions/values provided by this wetland include groundwater recharge/discharge, floodflow alteration, and sediment/toxicant retention.

Waterway WUS 082 is the outlet channel for Wetland 081, and is classified as intermittent with a rip-rap bottom (R4SB2). Flow was determined to be intermittent during the field visit primarily based on the stream's direct surface connection to a seasonally flooded wetland. Waterway WUS 082 flows north under Riverdale Road and into Brier Ditch about 750 feet north of the study area. The channel was three feet wide and two feet deep, and approximately three inches of surface water was observed flowing through the rip-rap. Habitat complexity was essentially absent given the modified substrate and lack of structural diversity.

3.2 Surface Waters

3.2.1 Watersheds

The study area is in the Chesapeake Bay watershed and contains three MDNR third order watersheds²—Potomac River Montgomery County, Rock Creek, and Anacostia River. Within these watersheds are six perennial streams each with their own subwatersheds: Little Falls, Rock Creek, Sligo Creek, Northwest Branch, Northeast Branch, and Lower Beaverdam Creek. The majority of the subwatersheds are highly developed with little or no vegetated buffer remaining along streams, especially the more urbanized watersheds of Little Falls, Sligo Creek, and Lower Beaverdam Creek. The subwatersheds are described below and are shown on Figure 2.

Little Falls

The Little Falls subwatershed is located in the westernmost portion of the study area and drains approximately 10 square miles (6,400 acres). Fifty percent of the subwatershed is developed, 10 percent is used for agriculture, and 30 percent is forested (CBP 2007). The Little Falls stream system originates south of Bethesda and flows south into the Potomac River, near the Montgomery County line. The Little Falls subwatershed is located within the Piedmont Physiographic Province.

The Little Falls subwatershed is one of Montgomery County's most urban stream systems and was greatly influenced by chemical pollution from the 1950s into the 1970s. The causes of this pollution include chlorine discharges from drinking water treatment facilities, sewer line problems, and a large oil spill that occurred in 1959. In 1976, a study found no aquatic life in Little Falls, although more recent studies have shown the presence of pollution-tolerant fish and macroinvertebrate species in low quantities (MCDEP 2011).

² Using the Strahler stream order, stream size is defined based on a hierarchy of tributaries. When two first-order streams (those with no tributaries) come together, they form a second-order stream. When two second-order streams come together, they form a third-order stream. The U.S. NRCS redefined the third order watersheds creating the HUA14 file.

Figure 2. Watersheds and Water Quality Sampling Locations

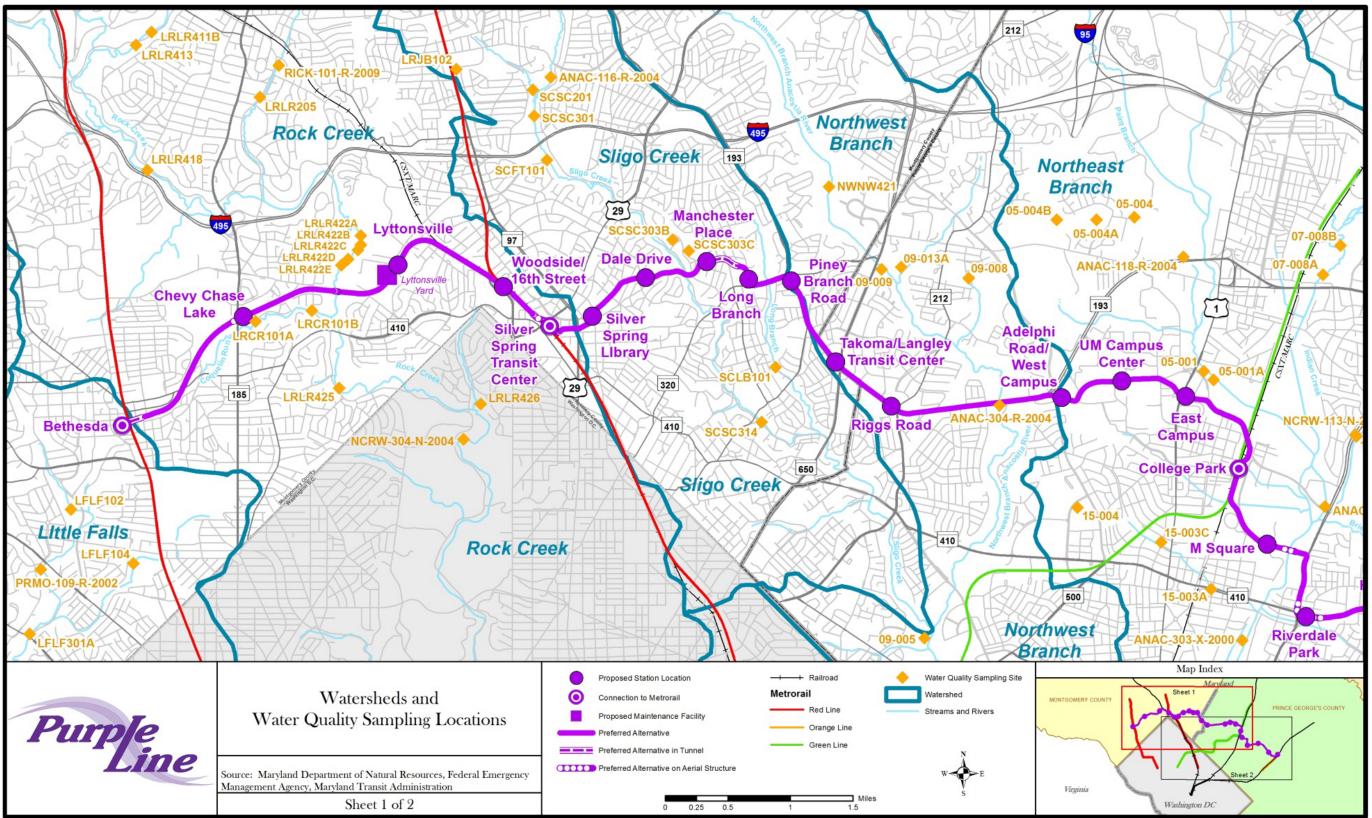
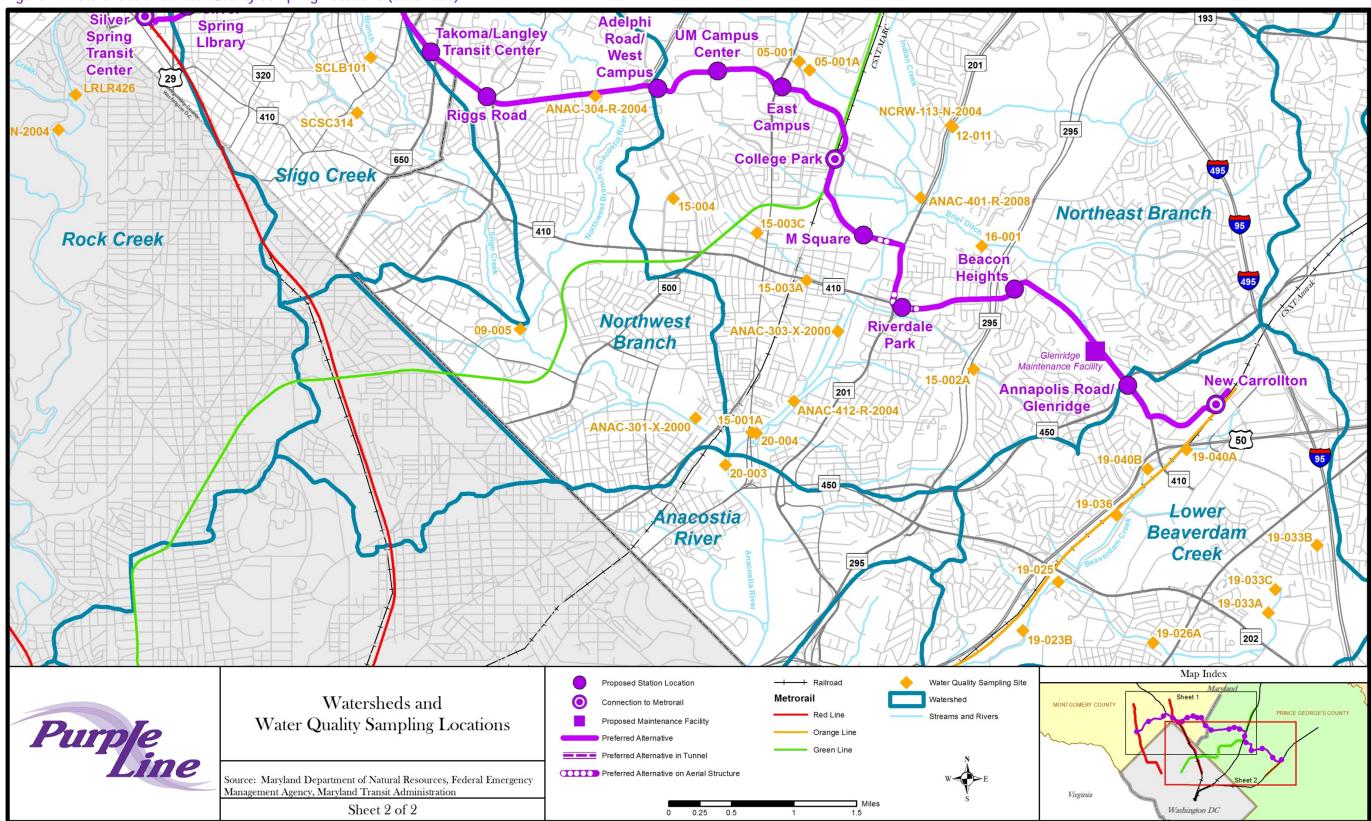


Figure 2. Watersheds and Water Quality Sampling Locations (continued)



Rock Creek

The Rock Creek subwatershed, another tributary of the Potomac River, drains approximately 82 square miles (52,480 acres) and lies within the Piedmont Physiographic Province in Montgomery County, Maryland. Within this subwatershed, 45 percent of land is developed, 19.5 percent is used for agriculture, and 31.7 percent is forested (CBP 2007). The stream originates south of Laytonsville and west of the Oaks Sanitary Landfill in northeast Montgomery County.

The Rock Creek subwatershed contains one of the area's most treasured and frequently used recreation corridors. The forested stream valley corridors provide a protective buffer to the stream and contain wetlands and vernal pools in the floodplain (MCDEP 2011). A major tributary to the Rock Creek watershed within the study area is Coquelin Run. Coquelin Run originates south of Bethesda, flows east paralleling the south side of the Capital Crescent Trail, and joins Rock Creek in the Rays Meadow section of Rock Creek Park. The Rock Creek subwatershed was placed in Category 5 of MDE's, U.S. EPA approved, *The 2010 Integrated Report of Surface Water Quality in Maryland* (MDE 2010) for phosphorous and total suspended solids. The 2010 Integrated Report is discussed in detail in the total maximum daily loads section.

Sligo Creek

The Sligo Creek subwatershed drains approximately 11.6 square miles (7,424 acres) into the Northwest Branch of the Anacostia River, near Hyattsville. Within this urbanized subwatershed, 75 percent is residential, 10 percent is forested, and eight percent is commercial (AWN 2009). The stream system originates in the Kemp Mill section of Silver Spring. This subwatershed occurs in both the Piedmont and the Coastal Plain Physiographic Provinces.

Long Branch is a major tributary of the Sligo Creek subwatershed within the study area. Long Branch originates southwest of the intersection of I-495 and MD 193 and flows south through the study area to join Sligo Creek. Many tributaries of the Sligo Creek subwatershed have been paved over and piped into storm drains. The remaining areas have been channelized, and many banks have been lined with rip-rap to prevent erosion during storm events. These alterations result in little habitat for aquatic life. Until recently, only three pollution-tolerant species of fish were identified in Sligo Creek. New runoff controls and stream channel restoration efforts have allowed for the successful recolonization of native fish species in recent years (MCDEP 2011).

Northwest Branch

The Northwest Branch is one of the largest subwatersheds in the study area and drains 41.89 square miles (26,812 acres). Within this subwatershed, 52 percent of land use is residential, 22 percent forested, nine percent is agricultural, and seven percent is parkland (AWN 2009). The Northwest Branch stream system originates southeast of Olney, in Montgomery County. It flows southeast across the Prince George's county line to meet the Northeast Branch, north of Bladensburg, forming the Anacostia River. This subwatershed occurs in both the Piedmont and the Coastal Plain Physiographic Provinces.

The headwaters of the Northwest Branch include some of the best water quality conditions in the Anacostia watershed. However, in the lower portions of the Northwest Branch these conditions deteriorate due to higher density development, stream channelization, and stormwater impacts (AWN 2009). The Northwest Branch subwatershed was placed in Category 5 of MDE's, U.S. EPA approved, *The 2010 Integrated Report of Surface Water Quality in Maryland* (MDE 2010) for heptachlor epoxide and polychlorinated biphenyls.

Northeast Branch

The Northeast Branch subwatershed drains approximately 14.7 square miles (9,419 acres). Within this subwatershed, 51 percent is residential, 26 percent is forested, and 10 percent is commercial (AWN 2009). The stream originates east of College Park at the confluence of Paint Branch and Indian Creek. Northeast Branch flows south from the confluence to meet the Northwest Branch, north of Bladensburg, to form the Anacostia River. This subwatershed occurs entirely within the Coastal Plain Physiographic Province.

The Northeast Branch subwatershed is channelized for 85 percent of its mainstem length, and most of it is managed as a flood-control channel. This prevents the growth of a riparian forest buffer and, consequently, only 21 percent of the mainstem has an adequate riparian buffer. Thermal loading resulting from channelization and lack of in-stream shading may impair aquatic biotic communities (AWN 2009). The Northwest Branch subwatershed was placed in Category 5 of MDE's, U.S. EPA approved, *The 2010 Integrated Report of Surface Water Quality in Maryland* (MDE 2010) for polychlorinated biphenyls.

Lower Beaverdam Creek

The Lower Beaverdam Creek subwatershed drains 15.7 square miles (10,065 acres). Within this subwatershed, 44 percent of land is in residential land use, 25 percent is forested, and 17 percent is industrial (AWN 2009). The stream flows west, paralleling the south side of US 50 and joins the Anacostia River in the District of Columbia. The subwatershed is located entirely in the Coastal Plain Physiographic Province.

The Lower Beaverdam Creek subwatershed is one of the most developed sections of the Anacostia watershed with its headwaters in dense residential and commercial development. Only 20 percent of the mainstem has an adequate riparian forest buffer. The degradation of aquatic habitat and poor water quality in Lower Beaverdam Creek has severely impaired the aquatic community (AWN 2009).

3.2.2 Water Quality

The MDE has established acceptable standards for several water quality parameters for each designated Stream Use Classification. The standards are listed in the Code of Maryland Regulations (COMAR) 26.08.02.01-.03 – Water Quality and are shown in Table 2.

Table 2. Use I and Use IV COMAR Standards

| Parameter | Use I-P | Use IV |
|------------------|---|---|
| Temperature | Maximum of 90°F (32°C) or ambient temperature, whichever is greater | Maximum of 75°F (23.9°C) or ambient temperature, whichever is greater |
| рН | 6.5 to 8.5 | 6.5 to 8.5 |
| Dissolved Oxygen | Minimum of 5 mg/L | Minimum of 5 mg/L |
| Turbidity | Maximum of 150 Nephelometer Turbidity Units (NTU) and maximum monthly average of 50 NTU | Maximum of 150 Nephelometer Turbidity Units (NTU) and maximum monthly average of 50 NTU |

Source: Maryland COMAR 26.08.02.01-03-Water Quality

With the exception of a portion of Northwest Branch, all streams within the study area are classified as Water Quality Use I: Water Contact Recreation and Protection of Non-tidal Warm Water Aquatic Life, which means that these streams support water contact sports, leisure activities involving direct contact with surface water, growth and propagation of fish other than trout and other aquatic life and wildlife, and agricultural and industrial water supply. Northwest Branch, north of East West Highway, is designated as

Use IV: Recreational Trout Waters. This designation means waters from this portion of Northwest Branch are capable of supporting adult trout for a put and take fishery, in addition to the uses supported by Use I streams.

Each parameter, measured by *in situ* sampling and regulated by the State of Maryland, can have a substantial effect on the aquatic communities of streams. These parameters – temperature, pH, dissolved oxygen, turbidity, and conductivity – each have different effects on aquatic biota.

The results of the chemical water quality sampling are summarized in Tables 3 and 4, and the locations of the water quality sampling stations are shown in Figure 2.

Table 3. Summary of Chemical Water Quality Conditions in the Little Falls, Rock Creek, and Sligo Creek Watersheds

| | | Little Falls | | Rock Creek | | Sligo Creek | |
|-------------------------|------------|--------------|--------------------------------|------------|--------------------------------|-------------|--------------------------------|
| Parameter | Standard | Avg | % sites outside standard | Avg | % sites outside standard | Avg | % sites outside standard |
| Dissolved Oxygen (mg/L) | >5 | 7.97 | 11.1 | 9.45 | 2.7 | 7.52 | 12.5 |
| pH (field) | 6.5 to 8.5 | 7.39 | 0 | 7.44 | 0 | 7.25 | 0 |
| Temperature (°C) | <32°C | 16.97 | 0 | 15.81 | 0 | 18.90 | 0 |
| Conductivity (mS/cm) | none | 0.61 | N/A | 0.47 | N/A | 0.36 | N/A |

Source: MBSS On-line Resource, MCDEP, and PGDER; N/A= sample not collected

Table 4. Summary of Chemical Water Quality Conditions in the Northwest Branch, Northeast Branch, and Lower Beaverdam Creek Watersheds

| | | Northwest Branch | | Northeast Branch | | Lower Beaverdam Creek | |
|-------------------------|------------|------------------|--------------------------------|------------------|--------------------------------|-----------------------|--------------------------------|
| Parameter | Standard | Avg | % sites outside standard | Avg | % sites outside standard | Avg | % sites outside standard |
| Dissolved Oxygen (mg/L) | >5 | 10.01 | 0 | 9.79 | 8.7 | 10.70 | 0 |
| pH (field) | 6.5 to 8.5 | 7.70 | 18.2 | 7.43 | 17.4 | 7.55 | 12.5 |
| Temperature (°C) | <32°C | 18.24 | 0 | 13.69 | 0 | 9.50 | 0 |
| Conductivity (mS/cm) | none | 0.310 | N/A | 0.31 | N/A | 0.48 | N/A |

Source: MBSS On-line Resource, MCDEP, and PGDER; NA= sample not collected

Generally, the six subwatersheds in the study area have *in situ* water quality averages that were within state water quality standards. Within the Little Falls subwatershed, dissolved oxygen levels were below Maryland State standards at one site, or 11.1 percent of the sampling events. Only one out of 70 sites within the Rock Creek subwatershed was below state standards for pH, the remaining *in situ* measurements were in compliance with COMAR standards. One site, or 12.5 percent of the dissolved oxygen readings in the Sligo Creek subwatershed, exhibited dissolved oxygen levels below State standards. In the Northwest Branch subwatershed, pH levels at two sites, or 18.2 percent of the sampling events, were out of compliance with State standards. Within the Northeast Branch subwatershed, pH levels and dissolved oxygen levels were below state standards at 8.7 and 17.4 percent of the readings, respectively, with most of the pH readings exceeding the 8.5 upper limit. Two sites within the Lower

Beaverdam Creek subwatershed, or 12.5 percent of the readings within this subwatershed, were outside of state standards for pH. The highest conductivity levels were seen in Lower Beaverdam Creek and Little Falls, which would be expected due to the high urbanization of these two watersheds.

Total Maximum Daily Loads

Impaired stream segments, also known as water quality limited (WQL) segments, are required by MDE to have a TMDL developed for each segment. These WQL can be considered "impaired" by analyzing a wide variety of water quality monitoring data, including chemical grab samples, *in situ* measurements, continuous measurements, and biological data. After listing a stream as a WQL in Category 5 of the Integrated Report, the state is required to prioritize each waterbody's need for TMDL development. Several WQL segments have been identified by MDE within the project area, and the status and results of the TMDL process are summarized in Table 5. The EPA has also developed and approved TMDLs throughout the Chesapeake Bay watershed.

Table 5. Current Status of TMDLs within the Project Study Area

| Watershed/Basin | Impairment | Status |
|-----------------------------------|------------|-------------------------------|
| Potomac River (in Maryland) | Nitrogen | Approved: December 29, 2010 |
| Potomac River (in Maryland) | Phosphorus | Approved: December 29, 2010 |
| Potomac River (in Maryland) | Sediments | Approved: December 29, 2010 |
| Potomac River (Montgomery County) | Sediments | Submitted: September 28, 2011 |
| Potomac River (Montgomery County) | Nutrients | Submitted: September 28, 2011 |
| Anacostia River | Bacteria | Approved: March 14, 2007 |
| Anacostia River | PCB | Approved: September 30, 2011 |
| Anacostia River | Sediment | Approved: July 24, 2007 |
| Anacostia River | Nutrients | Approved: June 5, 2008 |
| Anacostia River | Trash | Approved: September 21, 2010 |
| Rock Creek | Sediments | Approved: September 29, 2011 |
| Rock Creek | Bacteria | Approved: July 30, 2007 |

Sources: MDE TMDL On-line Resource (www.mde.state.md.us/Programs/WaterPrograms/TMDL), EPA Chesapeake Bay TMDL (http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html)

The Little Falls subwatershed is part of the nontidal portion of the Potomac River Montgomery County watershed. In 2011, this portion of the Potomac River had TMDLs submitted for sediment and nutrient impairments, but they have not yet been approved.

The nontidal portion of Rock Creek had TMDLs approved for bacteria and sediment impairments in 2007 and 2011, respectively. Currently, the primary sources of bacteria are bacterial loads from urban wildlife sources. Sediment impairments can be attributed to urbanization and uncontrolled stormwater runoff (MCDEP 2012).

The nontidal portion of the Anacostia River watershed, including Sligo Creek, Northwest Branch, Northeast Branch, and Lower Beaverdam Creek subwatersheds, had TMDLs approved for bacteria and sediment impairments in 2007. In 2008, a TMDL was approved for nutrients and in 2010 for trash. TMDL approval in 2011 was for Polychlorinated Biphenyls (PCBs), due to concentrations in the water column that exceed the criteria for human fish consumption. The primary sources of sediment impairment include stormwater runoff and in-stream erosion/scour. Elevated levels of bacteria, PCBs, and nutrients can be attributed to industrial and municipal point sources and combined sewer overflows (DDOE 2012).

The Chesapeake Bay TMDL was developed by the EPA and approved in 2010 to restore clean water in the Bay. The Bay TMDL allocated loadings for phosphorous, nutrients, and sediment based on the 19 major drainage basins. The project lies within the Potomac River basin.

3.2.3 Maryland Scenic and Wild Rivers

Portions of the Potomac River located in Montgomery County and its tributaries and the Anacostia River and its tributaries are designated as Scenic Rivers by the state of Maryland. Within the study area, the tributaries designated as Scenic Rivers are Little Falls, Sligo Creek, Northwest Branch, Northeast Branch, and Lower Beaverdam Creek. Although Rock Creek is a tributary of the Potomac River, it joins the Potomac downstream of the limits of the Scenic River designation and is not considered a Scenic River.

3.2.4 Federal Wild and Scenic Rivers

There are no designated Wild and Scenic Rivers within the study area.

3.3 Floodplains

The 100-year floodplains within the study area are associated with the larger perennial streams — Coquelin Run, Rock Creek, Sligo Creek, Northwest Branch, Paint Branch, Northeast Branch, Brier Ditch, and Lower Beaverdam Creek. Most of these floodplains are wooded because they occur in stream valley parks, where current or future development is regulated, if not prohibited. However, substantial encroachment already has occurred from private development and the construction of public infrastructure, including streets, sewer lines, and water mains that cross or parallel the floodplains. This is especially true within the floodplains of Coquelin Run, Northeast Branch, and Lower Beaverdam Creek. Despite these encroachments, the 100-year floodplains along study area streams continue to serve important floodplain functions including, but not limited to, floodflow attenuation, water quality improvement, and wildlife habitat.

3.4 Groundwater and Hydrogeology

The study area overlies the Piedmont and Blue Ridge Crystalline Rock and the Northern Atlantic Coastal Plain aquifers. The former extends from west of the study area to Riggs Road, while the latter extends eastward from Riggs Road to beyond the study area.

The hydrogeology of the project area is largely defined by the geology of the area. Based on the information gathered from the USGS, MGS, and MDE, five main aquifers are located within the project area. Three major aquifers occur west of MD 212 (Riggs Road) within the Piedmont Physiographic Province: crystalline-rock and undifferentiated sedimentary-rock aquifers, aquifers in early Mesozoic basins, and carbonate-rock aquifers. Two aquifers, Castle-Hayne Aquia and Potomac, located within the Coastal Plain Physiographic Province, extend from MD 212 to the eastern end of the project study area.

Most of the Piedmont Physiographic Province is underlain by dense impermeable bedrock that yields water from secondary porosity and permeability provided by fractures. Recharge is highly variable in these aquifers because it is determined by local precipitation and runoff, which are highly variable and are influenced by topographic relief, roadway infrastructure, land use, and the infiltration rates of the available land surface (USGS 1997). The crystalline-rock and undifferentiated sedimentary-rock aquifers are primarily composed of crystalline metamorphic and igneous rocks. An unconsolidated, permeable material called regolith overlies these aquifers. The regolith consists of saprolite, colluvium, alluvium,

and soil. The hydraulic properties of the regolith vary greatly due to the variation in thickness, composition, and grain size. The recharge and discharge process takes place in these aquifers in instream areas where precipitation enters the regolith and then moves laterally through this material, discharging into nearby streams. However, some of the water moves downward through the regolith until it reaches the bedrock where it enters fractures in crystalline rocks. Base flow ranges from 33 to 67 percent of stream flow in the drainage basins underlain by crystalline rocks (USGS 1997).

The aquifers in the early Mesozoic basins are composed of rocks that lie on crystalline rocks and locally sedimentary rocks. Sedimentary rocks in the basins consist predominately of interbedded shale, sandstone, and siltstone. Groundwater in the early Mesozoic aquifers moves primarily along joints and fractures. The hydraulic connection between individual aquifers is poor because most groundwater movement is parallel along bedding planes (USGS 1997).

The carbonate-rock aquifers are composed of limestone, dolomite, and marble, which have low permeability and porosity. Water moves through these rocks along joints, faults, and other openings created by dissolution. These mini-aquifers store water in deep fractures or solution channels that can transmit water several miles from recharge areas to discharge areas. Well yields from carbonate-rock aquifers are generally larger than those from the other two aquifers within the study area. Wells located in rock that is fractured only near the surface will yield from 10 to 20 gallons per minute for a limited amount of time until the fractures are drained. Wells located in depressional areas and valleys tend to have higher-than-average yields as these areas commonly occur near fracture zones in rock or the water table is near or at the surface in topographically low areas. The baseflow of a stream is supported by groundwater discharge and indicates the maximum sustained groundwater yield (USGS 1997).

The Castle Hayne-Aquia aquifer of the Coastal Plain Physiographic Province is subdivided into two local aquifers: the Piney Point Nanjemoy aquifer and the Aquia-Rancocas aquifer. Both aquifers are composed of glauconitic sand from different formations within this group. The aquifers are separated by silt and clay confining units that can be as thick as 210 feet. Water in these aquifers moves laterally from the northwestern limits of the aquifers toward the Potomac River. The Castle Hayne-Aquia aquifer does not receive recharge directly from precipitation and does not discharge by evapotranspiration. Recharge occurs from overlying and underlying aquifers by vertical leakage through confining units.

The Potomac aquifer has an extent that underlies a majority of the eastern portion of the project area. This larger aquifer includes two local aquifers: Patapsco and Patuxent aquifers. The local Patapsco aquifer and the underlying Patuxent aquifer contain a range of fine to coarse gravelly sand. The clay confining unit that separates the two aquifers is approximately 300 feet thick. The Potomac aquifer receives little direct recharge by precipitation. Water moves laterally through the Potomac aquifer but also flows vertically in and out of the aquifer from overlying aquifers.

Groundwater well withdrawals from the Piedmont province aquifers are generally suitable for drinking and other uses, but iron, manganese, and sulfate occur locally in concentrations well above EPA's National Secondary Drinking Water Regulations (NSDWR). These regulations are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply. High iron concentrations within drinking water can be attributed to corrosion of steel casings and well fittings, as well as iron-fixing bacteria. The natural weathering of rocks within the Mesozoic aquifers can also contribute iron and manganese to groundwater, especially if the water is slightly acidic.

The Potomac Aquifer of the Coastal Plain province has experienced saline water encroachment in several areas due to the ion-exchange reactions that occur in the water that percolates downward through overlying aquifers and confining units. Groundwater from monitoring wells drilled within the Coastal Plain aquifers had a more acidic pH than the recommended EPA standard (USGS 2006). Samples were significantly elevated above the EPA standards for the following organic compounds: alachor, benzoanthracene, benzopyrene, diethlpthalate, hexachorobenzene, hexachlorocyclopentadiene, and pentachlorophenol. The potential sources of contamination include discharge from rubber and chemical factories, metal refineries, agricultural chemical factories, and wood-preserving factories. Additional sources of contamination include leaching from the linings of water storage tanks and distribution lines, as well as runoff from herbicide used on row crops. The potential health effects from ingesting water with elevated levels of the above-listed contaminants include problems with the eye, liver, kidney, or spleen; anemia; increased risk of cancer; and reproductive difficulties.

3.5 Aquatic Biota and Habitat

3.5.1 Aquatic Biota

Data relating to aquatic biota were gathered from the Montgomery County Department of Environmental Protection (MCDEP), Prince George's County Department of Environmental Resources (PGDER), and Maryland Department of Natural Resources Maryland Biological Stream Survey (MDNR MBSS). A scale of very poor to good was used for community health, and a scale of degraded to excellent was used for physical habitat.

MDNR and MCDEP have both developed a Fish Index of Biological Integrity (FIBI), which compares the fish community at a given site to reference fish communities in the least-impaired streams. Both of these FIBIs are based on the same principles of measuring a community using a set of comparative metrics. However, the MDNR FIBI is based on state-wide reference streams and uses nine community metrics found to characterize fish community health in Maryland's Piedmont streams. PGDER follows the MDNR methods of sampling and analysis; consequently, PGDER and MDNR data are directly comparable. The MCDEP FIBI was developed using reference streams that are only located in Montgomery County, and the scoring of the nine metrics used is adapted specifically to conditions within the County. This difference in the metrics and scoring criteria causes FIBI scores and narrative rankings to also differ between MDNR/PGDER and MCDEP. Table 6 summarizes how each agency ranks each FIBI score and how each of these scores and rankings relates to reference conditions. Table 7 summarizes the scores associated with each subwatershed.

Three MCDEP sites and one MDNR site were located within the Little Falls subwatershed. Fish were absent from two out of three MCDEP sites and blacknose dace and largemouth bass were collected at the third site. Two species, creek chub and blacknose dace were collected at the MDNR site. All three of these fish species are considered to be pollution-tolerant.

Nineteen MCDEP sites were located in the Rock Creek subwatershed, and these sites had a FIBI ranging from 1.20 (Poor) to 3.90 (Fair). Two sites sampled by MDNR had scores ranging from 1.33 (Poor) to 1.67 (Poor). The Rock Creek sites showed a relatively diverse fish community comprising 23 species. Nine of these species are considered to be pollution-intolerant. No game fish were collected at these sites. One migratory species, American eel, was present.

Table 6. MDNR/PGDER and MCDEP FIBI Scores and Rankings

| FIBI Score | Narrative Ranking | Characteristics |
|-----------------|----------------------|---|
| MDNR/PGD | PER | |
| 4.0 – 5.0 | Good | Comparable to reference streams considered to be minimally impacted, biological metrics fall within the upper 50 percent of reference site conditions. |
| 3.0 – 3.9 | Fair | Comparable to reference conditions, but some aspects of biological integrity may not resemble the qualities of minimally impacted streams. |
| 2.0 – 2.9 | Poor | Significant deviation from reference conditions, indicating some degradation. On average, biological metrics fall below the 10 th percentile of reference site values. |
| 1.0 - 1.9 | Very Poor | Strong deviation from reference conditions, with most aspects of biological integrity not resembling the qualities of minimally impacted streams, indicating severe degradation. On average, most or all metrics fall below the 10th percentile of reference site values. |
| MCDEP | | |
| >4.5 | Excellent | Comparable to the biological community found in reference streams. Exceptional assemblage of species with a balanced community composition. |
| 3.5 –4.5 | Good | Decreased number of sensitive species; decreased number of specialized feeding groups with some intolerant species present. |
| 2.3 – 3.4 | Fair | Intolerant and sensitive species are largely absent; unbalanced feeding group structure. |
| <u><</u> 2.2 | Poor | Top carnivores and many expected species are absent or rare; general feeders and tolerant species dominate. |

Source: Roth et. al. 1997, MCDEP 1998, and PGDER 1995

Table 7. Summary of Existing Fish Community Data in Purple Line Watersheds

| Subwatershed | Agency | Number of Sites | FIBI Score Range | FIBI Narrative | FIBI Average |
|--------------------------|------------|---------------------|------------------|------------------|-----------------|
| Little Falls | MCDEP | 2 | 1.00-1.70 | Poor | 1.23 |
| Little Falls | MDNR | 1 | 1.00 | Very Poor | - |
| Rock Creek | MCDEP | 5 | 1.20-3.90 | Poor-Good | 2.43 |
| Rock Creek | MDNR | 2 | 1.33-1.67 | Very Poor | 1.50 |
| Sligo Creek | MCDEP | 7 | 1.40-2.60 | Poor-Fair | 1.98 |
| Sligo Creek | MDNR | 1 | 1.33 | Very Poor | - |
| Northwest Branch | MCDEP | 1 | 3.40-4.30 | Fair -Good | 3.87 |
| Northwest Branch | MDNR | 2 | 3.67-4.00 | Fair-Good | 3.89 |
| Northeast Branch | MDNR/PGDER | MNDR- 5 PGDER- 2 | 1.00-4.33 | Very Poor - Good | 3.24 |
| Lower Beaverdam Creek | PGDER | 9 | 2.00-3.67 | Poor - Fair | 2.70 |

Nine sites, eight sampled by MCDEP and one sampled by MDNR, were located within the Sligo Creek subwatershed. At the MCDEP sites, FIBI scores ranged from 1.40 (Poor) to 2.60 (Fair). The MDNR FIBI score was 1.33 (Poor). These sites showed moderate diversity with 14 different species of fish collected. Of these 14 species, 50 percent are considered to be pollution-tolerant. One migratory fish species was present, the American eel.

Three sites were sampled by MCDEP in the Northwest Branch subwatershed and had FIBI scores ranging from 3.40 (Fair) to 4.30 (Good). Three MDNR sites had scores ranging from 3.67 (Good) to 4.00 (Good). Species diversity was relatively high with 36 species of fish documented. Of these species, more than 25

percent are considered to be pollution intolerant and over 33 percent to be pollution-tolerant. Two species of game fish were present, largemouth bass and smallmouth bass. Three migratory fish species were present, the American eel, sea lamprey, and yellow perch.

Seven sites were located in the Northeast Branch subwatershed. Five sites sampled by MDNR had FIBI scores ranging from 2.00 (Poor) to 4.33 (Good). The other two sites were sampled by PGDER and had a range of FIBI scores from 1.00 (Very Poor) to 4.00 (Good). Diversity was high with 37 species of fish documented in this subwatershed. Approximately 30 percent are considered pollution-tolerant species, while approximately 24 percent are considered to be pollution-intolerant. Two species of game fish, largemouth bass and striped bass, were collected in the Northeast Branch. Three migratory fish were found at these sites, American eel, American shad, and sea lamprey.

Five sites, sampled by PGDER, were located in the Lower Beaverdam Creek subwatershed. The FIBI scores at these sites ranged from 2.00 (Poor) to 3.67 (Good). These sites showed moderate diversity with 16 different species of fish collected. Of these 16 species, more than 37 percent are considered to be pollution-tolerant. No game fish were collected at these sites. The American eel was the only migratory species found in the Lower Beaverdam Creek subwatershed.

Table 8 identifies the species of fish that have been collected at each of these sites, summarized by watershed. Overall, 45 species of fish have been collected since 2000, including three species of game fish – largemouth bass, smallmouth bass, and striped bass were collected; and four migratory species – the American eel, striped bass, sea lamprey, and yellow perch.

Table 8. Fish Species Documented in Purple Line Watersheds

| Fish Species | Pollution Tolerance | Little Falls | Rock Creek | Sligo Creek | Northwest Branch | Northeast Branch | Lower Beaverdam Creek |
|--|------------------------|-----------------|---------------|----------------|---------------------|---------------------|-----------------------------|
| American eel (Anguilla rostrata) | No type | | Χ | Χ | X | X | Х |
| American shad (Alosa sapidissima) | No type | | | | | Χ | |
| Banded killifish (Fundulus diaphanus) | No type | | | | Χ | Χ | Χ |
| Blacknose dace (Rhinichthys atratulus) | Т | Х | Χ | Χ | X | Χ | Х |
| Bluegill (Lepomis macrochirus) | T | | Χ | Χ | Χ | Χ | Χ |
| Blue Ridge sculpin (Cottus caeruleomentum) | 1 | | | Χ | | | |
| Bluntnose minnow (Pimephales notatus) | Т | | Χ | | Х | Χ | |
| Brown bullhead (Ameiurus nebulosus) | T | | | Χ | Χ | Χ | |
| Channel catfish (Ictalurus punctatus) | No type | | | | Χ | Χ | |
| Common carp (Cyprinus carpio) | No type | | Χ | | Χ | | |
| Common shiner (Luxilus cornutus) | 1 | | | Χ | Χ | Χ | |
| Creek chub (Semotilus atromaculatus) | T | Χ | Χ | Χ | Χ | Χ | |
| Creek chubsucker (Erimyzon oblongus) | No type | | | | | Χ | Х |
| Cutlips minnow (Exoglossum maxillingua) | I | | Х | | Х | Χ | |
| Eastern mosquitofish (Gambusia holbrooki) | No type | | | | Х | Χ | Х |
| Eastern mudminnow (Umbra pygmaea) | T | | | | Х | X | |

Table 8. Fish Species Documented in Purple Line Watersheds (continued)

| | | | | | | | T |
|---|------------------------|-----------------|---------------|----------------|---------------------|---------------------|-----------------------------|
| Fish Species | Pollution Tolerance | Little Falls | Rock Creek | Sligo Creek | Northwest Branch | Northeast Branch | Lower Beaverdam Creek |
| Eastern silvery minnow | | | | | | Х | |
| (Hybognanthus regius) | No type | | | | | ^ | |
| Fallfish (Semotilus corporalis) | | | Χ | | Χ | | |
| Fantail darter (Etheostoma flabellare) | No type | | | | X | | |
| Fathead minnow (Pimephales promelas) | No type | | | | | Χ | |
| Gizzard shad (Dorosoma cepedianum) | No type | | | | | Χ | |
| Golden redhorse (Moxostoma erythrurum) | No type | | | | Х | X | |
| Golden shiner (Notemigonus crysoleucas) | Т | | Х | | X | | X |
| Goldfish (Carssius auratus) | No type | | Χ | Χ | | Х | |
| Green sunfish (Lepomis cyanellus) | T | | Χ | Χ | Χ | Χ | Χ |
| Lepomis hybrid (Lepomis sp.) | No type | | | Χ | | | Χ |
| Largemouth bass (Micropterus salmoides) | Т | Χ | | | X | Χ | |
| Longnose dace (Rhinichthys cataractae) | No type | | Χ | Х | Х | X | |
| Mummichog (Fundulus heteroclitus) | No type | | | | Χ | Χ | Χ |
| Northern hogsucker (Hypentelim nigricans) | I | | Х | | X | X | |
| Pumpkinseed (Lepomis gibbosus) | T | | Χ | | Х | Х | Х |
| Redbreast sunfish (Lepomis auritus) | | | Χ | | Χ | Χ | Χ |
| Rosyside dace (Clinostomus funduloides) | 1 | | | | Х | X | |
| Satinfin shiner (Cyprinella analostana) | I | | Χ | | Х | Х | Х |
| Sea lamprey (Petromyzon marinus) | I | | | | Х | Х | |
| Silverjaw minnow (Notropis buccatus) | No type | | | | Χ | Χ | |
| Smallmouth bass (Miropterus dolomieu) | No type | | | | Х | | |
| Spotfin shiner (Cyprinella spilopterus) | | | Χ | | Х | Х | |
| Spottail shiner (Notropis hudsonius) | I | | Χ | | Х | Х | X |
| Striped Bass (Morone saxatilis) | No type | | | | | Х | |
| Swallowtail shiner (Notropis procne) | No type | | Χ | Χ | Χ | Χ | X |
| Tessellated darter (Etheostoma olmstedi) | Т | | Х | Х | Х | X | |
| White sucker (Catostomus commersoni) | Т | | Х | Х | Х | Х | Х |
| Yellow bullhead (Ameiurus natalis) | No type | | Χ | | Х | Χ | |
| Yellow perch (Perca flavescens) | No type | | | | Χ | | |
| Total Number of Species | | 2 | 22 | 14 | 36 | 37 | 16 |

T = Pollution Tolerant I = Pollution Intolerant

Source: MCDEP Database, MDNR MBSS Database, PGDER Sampling

In a letter dated May 2012, the NMFS commented that Paint Branch, Northeast Branch, and Brier Ditch are documented as spawning grounds for anadromous fish, such as blueback herring, alewife, and hickory shad, which live in marine waters but migrate to fresh water to breed. They also serve as nursery grounds for catadromous fish, such as the American eel fish, which live in fresh water but migrate to marine waters to breed.

Historically, blockages within and downstream of the study area have prevented anadromous and catadromous fish from migrating. Specific blockages within Rock Creek and Northwest Branch were identified in 2004 and 2007. These blockages continue to be present downstream of the study area, which reduces the likelihood of finding anadromous and catadromous fish passing through or using the study area streams for breeding or early development. A blockage on Northeast Branch just south of River Road was modified to permit fish passage in 1991. Anadromous fish were observed just below this blockage point in 2007. However, the 1991 modification could allow for fish to move north of River Road into the study area.

3.5.2 Benthic Macroinvertebrates

MDNR and MCDEP have both developed a Benthic Index of Biotic Integrity (BIBI) that compares the macroinvertebrate community within a given site to reference macroinvertebrate communities in a least-impaired stream. The MDNR BIBI is based on statewide reference streams and uses nine community metrics found to characterize macroinvertebrate community health in Maryland's Piedmont streams. For its sampling, PGDER follows the MDNR methods of sampling and analysis, so PGDER and MDNR data are directly comparable. The MCDEP BIBI was developed using reference streams only within Montgomery County, and the scoring of the nine metrics used is tailored specifically to conditions within the County. Because the metrics and scoring criteria differ, the resulting BIBI scores and narrative rankings are also different between MDNR/PGDER and MCDEP. Table 9 summarizes how each agency ranks each BIBI score and how each of these scores and rankings relates to reference conditions.

| Table 9. | MDNR/PGDER a | and MCDEP E | BIBI Scores and | Rankings |
|----------|--------------|-------------|-----------------|----------|
|----------|--------------|-------------|-----------------|----------|

| BIBI Score | Narrative Ranking | Characteristics |
|-------------|-------------------|---|
| MDNR/PGDER | | |
| 4.00 – 5.00 | Good | Comparable to reference streams considered to be minimally impacted, biological metrics fall within the upper 50 percent of reference site conditions. |
| 3.00 – 3.90 | Fair | Comparable to reference conditions, but some aspects of biological integrity may not resemble the qualities of minimally impacted streams. |
| 2.00 – 2.90 | Poor | Significant deviation from reference conditions, indicating some degradation. On average, biological metrics fall below the 10 th percentile of reference site values. |
| 1.00 - 1.90 | Very Poor | Strong deviation from reference conditions, with most aspects of biological integrity not resembling the qualities of minimally impacted streams, indicating severe degradation. On average, most or all metrics fall below the 10 th percentile of reference site values. |
| MCDEP | | |
| <u>≥</u> 35 | Excellent | Comparable to the biological community found in reference streams. Exceptional assemblage of species with a balanced community composition. |
| 26 – 34 | Good | Decreased number of sensitive species; decreased number of specialized feeding groups with some intolerant species present. |
| 17 – 25 | Fair | Intolerant and sensitive species are largely absent; unbalanced feeding group structure. |
| <u>≤</u> 17 | Poor | Top carnivores and many expected species are absent or rare; general feeders and tolerant species dominate. |

Table 10 summarizes the benthic macroinvertebrate community data for the watersheds within the study area, and each watershed is described below.

Table 10. Summary of Existing Benthic Macroinvertebrate Community Data for Purple Line Watersheds From 2000 - 2011

| Subwatershed | Agency | Number of Sites | BIBI Score Range | BIBI Narrative | BIBI Average |
|--------------------------|------------|----------------------|---------------------|------------------|--------------|
| Little Falls | MCDEP | 2 | 8-16 | Poor | 11.6 |
| Little Falls | MDNR | 1 | 2.33 | Poor | - |
| Rock Creek | MCDEP | 12 | 8-22 | Poor-Fair | 11.74 |
| Rock Creek | MDNR | 2 | 1.00-1.67 | Very Poor | 1.34 |
| Sligo Creek | MCDEP | 3 | 8-14 | Poor | 11.5 |
| Sligo Creek | MDNR | 1 | 1.67 | Very Poor | - |
| Northwest Branch | MCDEP | 1 | 16 | Poor | 16 |
| Northwest Branch | PGDER | 4 | 1.00-3.00 | Very Poor - Fair | 2.24 |
| Northeast Branch | MDNR/PGDER | MDNR- 5 PGDER- 15 | 1.00-4.14 | Very Poor - Good | 2.59 |
| Lower Beaverdam Creek | PGDER | 15 | 1.00-3.00 | Very Poor - Fair | 2.33 |

Within the Little Falls subwatershed, benthic macroinvertebrate communities were rated as Poor. The macroinvertebrate community within the Little Falls subwatershed was generally dominated by pollution-tolerant midges (Chironomidae) and common net-spinning caddisflies (Hydropsychidae and Cheumatopsyche).

Nineteen sites were located within the Rock Creek subwatershed in the study area; seventeen were sampled by MCDEP, and two were sampled by MDNR. The eighteen sites sampled by MCDEP had BIBI scores ranging from 8 (Poor) to 22 (Fair); over 80 percent of the scores were in the Poor range. Both sites sampled by MDNR were rated as Very Poor. Generally, within Rock Creek, benthic macroinvertebrate communities were comprised of pollution-tolerant midges and net-spinning caddisflies with the sites that scored in the Fair range containing greater numbers of less tolerant damselfly and mayfly larvae.

The MCDEP recorded BIBI scores for four sites in the Sligo Creek subwatershed; all four were rated as Poor. Additionally, MDNR rated one site in the subwatershed as Very Poor. The benthic macroinvertebrate community within Sligo Creek was dominated by tolerant midge taxa, with other less tolerant taxa including scuds (Amphipoda) and net-spinning caddisflies comprising the MDNR site.

The macroinvertebrate community of Northwest Branch was rated as Poor by MCDEP. Maryland Department of Natural Resources and PGDER rated sites in this subwatershed with BIBI scores ranging from 1.00 (Very Poor) to 3.00 (Fair) and an average score of 2.24. These communities were also dominated by midges and net spinning caddisflies, with the addition of a few less tolerant taxa at the higher scoring sites.

The benthic macroinvertebrate communities in Northeast Branch subwatershed as rated by MDNR and PGDER ranged from 1.00 (Very Poor) to 3.86 (Fair), with an average score of 2.59. Similar to other subwatersheds in the project area, these sites were dominated by midges; however, the higher scoring

sites had a few less tolerant taxa, including mayflies. The sites in this subwatershed exhibited greater taxa diversity than the other subwatersheds sampled.

Sites sampled within Lower Beaverdam Creek had BIBI scores that ranged between 1.00 (Very Poor) and 3.00 (Fair), with an average score of 2.33. Seventy-three percent of the sites in this subwatershed were rated as Poor. Benthic macroinvertebrate communities were dominated by midges and sensitive benthic macroinvertebrates, and EPT taxa were uncommon in Lower Beaverdam Creek. However, midge dominance was lower in this subwatershed than it was at other sites within the project area.

3.5.3 Physical Habitat

Each agency from which biological data were collected uses its own habitat scoring and narrative ranking process. MCDEP uses EPA's Rapid Bioassessment Protocol (RHAB) for habitat scoring. This protocol is based on the quality of instream habitat, epifaunal substrate, embeddedness, channel alteration, channel flow status, bank vegetative protection, bank stability, and riparian vegetative zones. Through extensive sampling, the narrative ranking criteria in Table 11 were developed by MCDEP specifically for streams within Montgomery County. Prince George's County also uses EPA's RHAB, but with ranking criteria developed specifically for streams within Prince George's County. The habitat assessment used by the MDNR, referred to as the Physical Habitat Index (PHI) is specialized for both Piedmont and Coastal Plain streams. Within the Piedmont Physiographic Province PHI scores are based on remoteness, shading, epifaunal substrate, instream habitat, instream woody debris and rootwads, bank stability, riffle quality, and embeddedness. In the Coastal Plain Physiographic Province, PHI scores are based on remoteness, shading, epifaunal substrate, instream habitat, instream woody debris and rootwads, and bank stability. In 2007, MDNR stopped calculating the PHI, therefore data from this agency will only be presented through 2006.

Table 11. MCDEP, PGDER, MDNR Habitat Ranking Criteria

| Score | Narrative |
|------------|----------------------|
| MCDEP RHAB | |
| 166-200 | Excellent |
| 154-165 | Good/Excellent |
| 113-153 | Good |
| 101-112 | Fair/Good |
| 60-100 | Fair |
| 54-59 | Poor/Fair |
| 0-53 | Poor |
| PGDER RHAB | |
| 151-200 | Comparable |
| 126-151 | Supporting |
| 100-125 | Partially Supporting |
| < 100 | Non-supporting |
| MDNR PHI | |
| 81-100 | Minimally Degraded |
| 66-80 | Partially Degraded |
| 51-65 | Degraded |
| 0-50 | Severely Degraded |

Source: MCDEP1998, PGDER 1995, and MDNR 2003

Table 12 summarizes the existing habitat data for the watersheds within the study area, and each watershed is described below.

Table 12. Summary of Existing Habitat Data for Purple Line Watersheds

| Subwatershed | Agency | Number of Sites | RHAB/ PHI Score Range | BIBI Narrative | BIBI Average |
|------------------|------------|-----------------|--------------------------|-------------------------------|-----------------|
| Little Falls | MCDEP | 2 | 78-155 | Fair - Excellent/Good | 117 |
| Rock Creek | MCDEP | 10 | 80-139 | Fair/Good | 106 |
| Rock Creek | MDNR | 1 | 61.32 | Degraded | - |
| Sligo Creek | MCDEP | 2 | 69-123 | Fair - Good | 102 |
| Sligo Creek | MDNR | 1 | 59.27 | Degraded | - |
| Northwest Branch | MCDEP | 1 | 85-162 | Fair - Excellent/Good | 125 |
| Northwest Branch | MDNR | 1 | 66.82 | Partially Degraded | - |
| | | MDNR-1 | | Severely Degraded - Minimally | |
| Northeast Branch | MDNR/PGDER | PGDER- 1 | 30.36-85.93 | Degraded | 58 |

In the Little Falls subwatershed, the MCDEP habitat scores ranged from Fair to Good/Excellent. The lowest parameter scores within the Little Falls subwatershed were bank stability, bank vegetation, and sedimentation.

Twenty three MCDEP RHAB ratings were given to 11 sites in the Rock Creek subwatershed. Ratings ranged from Fair to Good. The lowest parameter scores within the Rock Creek subwatershed were riparian vegetation, bank stability, and bank vegetation, while the MDNR site was degraded.

The MCDEP rated five sites in the Sligo Creek subwatershed from Fair to Good. The lowest parameter scores within the Sligo Creek subwatershed were instream habitat for fish, bank stability, bank vegetation, and sedimentation.

The MCDEP documented aquatic habitat conditions at five sites in the Northwest Branch subwatershed with scores ranging from Fair (85) to Excellent Good (162). The MDNR assessed one site in the subwatershed as having Partially Degraded aquatic habitat conditions. The lowest parameter scores within the Northwest Branch subwatershed were instream habitat for fish, embeddedness, and bank stability.

The MDNR PHI rated two sites within the Northeast Branch subwatershed, one as Minimally Degraded and one as Severely Degraded.

4. Preferred Alternative

4.1 Long-Term Operational Effects and Mitigation

4.1.1 WUS and Wetlands

The Preferred Alternative has the potential to permanently affect WUS and wetlands in the study area where roadway widening to accommodate the transitway would occur and to implement drainage improvements. Table 13 describes the potential permanent impacts of the Preferred Alternative on WUS and wetlands within the study area. Table 14 summarizes the total impact by project element. Quantities were calculated based upon the current limit of disturbance.

Table 13. Type of Impact to WUS and Wetlands

| Water Resource | Preferred Alternative | Type of Impact |
|------------------------|---|--|
| WUS GB-1 | Waterway Impact (110 linear feet of ephemeral, | Both the ephemeral channel and stream will |
| Coquelin Run | 1,447 linear feet of intermittent) | be placed in a closed drainage system. |
| WUS GB-2 | Waterway Impact (134 linear feet of intermittent) | Culvert extension |
| WUS GB-3 | Waterway Impact (70 linear feet of intermittent) | Culvert extension |
| WUS GB-4 | Waterway Impact (117 linear feet of intermittent) | Culvert extension |
| WUS GB-9 | Waterway Impact (352 linear feet of intermittent) | Stream relocation |
| WUS 003 Sligo Creek | Waterway Impact (323 linear feet of perennial) | Sligo Creek stream relocation |
| WUS 005 Long Branch | Waterway Impact (260 linear feet of perennial) | Culvert replacement |
| WUS 007 | Waterway Impact (419 linear feet of perennial) | Retaining walls |
| WUS 008 | Waterway Impact (413 linear feet of intermittent) | Retaining walls |
| WUS 009 | Waterway Impact (41 linear feet of intermittent) | Stream relocation |
| WUS 012 | Waterway Impact (71 linear feet of perennial) | Outfall reconfiguration |
| WUS 015 | None | None |
| WUS 016 | Waterway Impact (249 linear feet of perennial) | Culvert placement |
| Wetland 019 | Wetland Impact (0.02 acre of PEM); POW impact (0.08 acre) | Retaining wall |
| WUS 030 | Waterway Impact (82 linear feet of intermittent) | Stream relocation at culvert in the Glenridge Facility |
| WUS 032 | Waterway Impact (111 linear feet of intermittent) | Stream will be placed in close drainage system in the Glenridge Facility |
| WUS 034 | Waterway Impact (590 linear feet of intermittent) | Relocation into a closed drainage system |
| Wetland 035 | Wetland Impact (0.06 acre of PEM) | Permanent impact due to fill |
| WUS 036 | Waterway Impact (46 linear feet of intermittent) | Culvert reconfiguration |
| Wetland 037 | Wetland Impact (0.10 acre of PEM); POW Impact (0.02 acre) | Culvert reconfiguration |
| WUS 048 | Waterway Impact (139 linear feet of intermittent) | Stream relocation near culvert in the Glenridge Facility |
| WUS 057 | Waterway Impact (33 linear feet of intermittent) | Culvert Extension |
| WUS 058 | Waterway Impact (110 linear feet of ephemeral) | Retaining walls |
| Wetland 059 | Wetland Impact (0.06 acre of PFO) | Retaining walls |
| Wetland 060 | Wetland Impact (0.18 acre of PFO) | Retaining walls |

| Water Resource | Preferred Alternative | Type of Impact |
|----------------|---|---|
| WUS 062 | Waterway Impact (65 linear feet of ephemeral) | None |
| WUS 063 | Waterway Impact (83 linear feet of intermittent) | Stream will be placed in closed drainage system in the Glenridge Facility |
| WUS 064 | Waterway Impact (107 linear feet of intermittent) | Stream will be placed in closed drainage system in the Glenridge Facility |
| WUS 066 | Waterway Impact (50 linear feet of perennial) | Culvert reconfiguration |
| Wetland 067 | Wetland Impact (0.03 acre of PEM); POW Impact (0.01 acre) | Culvert reconfiguration |
| WUS 068 | Waterway Impact (14 linear feet of intermittent) | Outfall reconfiguration due to Lyttonsville Facility |
| WUS 071 | Waterway Impact (70 linear feet of ephemeral) | Stream relocation |
| Wetland 072 | None | None |
| WUS 073 | Wetland Impact (0.03 acre of PFO) | Permanent impact due to fill |
| Wetland 075 | Wetland Impact (0.02 acre of PFO) | Permanent impact due to fill |
| Wetland 079 | Wetland Impact (0.23 acre of PEM) | Proposed SWM facility |
| Wetland 080 | Wetland Impact (0.04 acre of PEM) | TPSS location |

Table 13. Type of Impact to WUS and Wetlands (continued)

Table 14. Summary of Impacts to Waters of the U.S. and Wetlands

| Alternative and other Project Elements | Vegetated Wetlands (acres) | Palustrine Open Water (acres) | R2/R4 ¹ (linear feet) | Ephemeral (linear feet) |
|--|----------------------------------|-------------------------------------|-------------------------------------|----------------------------|
| Transitway and Stations | 0.73 | 0.11 | 4,616 | 355 |
| Lyttonsville Yard | 0 | 0 | 14 | 0 |
| Glenridge Maintenance Facility | 0 | 0 | 522 | 0 |
| TPSS | 0.04 | 0 | 0 | 0 |
| Project Total | 0.77 | 0.11 | 5,152 | 355 |

¹R2 = Riverine Lower Perennial, R4 = Riverine Intermittent

As the project currently stands, the Preferred Alternative would permanently affect approximately 0.77 acres of wetland, with a majority of impacts occurring to the vegetated wetlands located north and south of University Boulevard, west of Northwest Branch, and along the south side of Ellin Road. A majority of the anticipated impacts to WUS occur at streams that currently flow under or parallel to the proposed Purple Line corridor. Long-term effects to these systems are a result of widening the existing roadways to accommodate the track.

During the construction of new, or replacement or extension of existing pipes, culverts or bridges, 5,152 linear feet of intermittent or perennial stream channel would be affected by drainage improvements involving new, replaced, or extended drainage pipes, or by culverts, or bridges. The majority of the stream impacts would occur within the Georgetown Branch right-of-way and along Ellin Road, where stream systems would be placed in closed drainage systems for most of their length within the limits of the project.

• Additionally, a total of 355 linear feet of ephemeral channel (channels that contain water for only short periods of time following precipitation or snowmelt) would be affected by the Preferred Alternative, with a majority of the impacts occurring along the south side of University Boulevard.

Approximately 0.08 acre of a palustrine open water system (small, shallow, unvegetated pond), located along the south side of River Road may also be permanently affected due to retaining walls along that portion of the road as part of the Preferred Alternative. Approximately 0.03 acres of two large palustrine open water systems (small, shallow, unvegetated ponds) located south of Ellin Road would be affected by the extension of a triple box culvert.

4.1.2 Surface Waters

Water Quality

While the MTA has strived to avoid or minimize the water quality impacts, the project would increase impervious surfaces in the study area, which could increase the amount of surface runoff and potentially increase the level of contaminants such as heavy metals, salt, organic molecules, and nutrients in the surface runoff (Trombulak 1999).

MTA is considering using green track along the Georgetown Branch right-of-way and the CSXT right-of-way to minimize runoff. Green tracks typically consist of grass or sedum plantings in an 8-inch deep section of planting medium (a non-engineered soil mix), placed over a free-draining track ballast. Green track allows for some water absorption within the planting medium, thereby reducing the movement of potential contaminants to surface water bodies. The green track reduces stormwater runoff and increases local air humidity. The majority of the eastern portion of the transitway would be located largely within currently paved areas along existing roadways, although some roadway expansions would be required to accommodate the transitway. Redevelopment of the Lyttonsville site for the proposed Lyttonsville Yard would almost completely overlie existing impervious areas, thus creating minimal new impervious surfaces. The Glenridge Maintenance Facility would add new impervious surfaces, as would some stations and TPSS. However, the addition of impervious surfaces from the Glenridge Maintenance Facility would only contribute a net increase of approximately 0.06 percent of impervious surface to the Northeast Branch watershed.

Total Maximum Daily Loads

Since the study area is already developed and the Preferred Alternative includes proposed infrastructure to effectively manage stormwater runoff generated by the project, increases in nutrient and sediment levels from the project are unlikely to affect overall TMDL management. Current water quality impairment issues primarily result from bacteria in animal waste, leaking septic and sewer systems, stormwater outfalls, and sanitary sewer overflows. It is unlikely that the Preferred Alternative would affect or contribute substantially to bacteria levels within the subwatersheds. To the extent that TMDL thresholds pertain to typical contaminants from impervious surfaces and transportation operations, the project stormwater BMPs designed in coordination with the MDE would minimize adverse effects.

Scenic and Wild Rivers

The Preferred Alternative would affect tributaries of the Montgomery County portion of the Potomac River and the Anacostia Rivers, all parts of which are designated as State-listed scenic rivers. The impacts to these streams would be due to culvert and pipe replacement and extension from bridge crossings. The relocation of a section of Sligo Creek north of Wayne Avenue would result in the greatest impact.

4.1.3 Floodplains

The Preferred Alternative has the potential to affect approximately 23.2 acres of existing 100-year floodplains, as quantified in Table 15. These quantities were determined by the estimated footprints of

cut and fill areas associated with project construction. Longitudinal crossings of floodplains, which create longer crossings along the length of the floodplain rather than crossing in the shortest perpendicular span, have been avoided because they would result in more floodplain fill, a reduction in water conveyance, and reduction in floodplain storage capacity.

| Project Elements | Rock Creek | Sligo Creek | Northwest Branch | Paint Branch | Northeast Branch | Total |
|-----------------------------------|---------------|-------------|---------------------|-----------------|---------------------|-------|
| Transitway and Stations | 0.80 | 1.4 | 6.4 | 4.5 | 10.0 | 23.1 |
| Lyttonsville Yard | 0 | 0 | 0 | 0 | 0 | 0 |
| Glenridge Maintenance Facility | 0 | 0 | 0 | 0 | 0 | 0 |
| TPSS | 0 | 0 | 0 | 0 | 0.1 | 0.1 |
| Project Total | 0.80 | 1.4 | 6.4 | 4.5 | 10.0 | 23.2 |

Table 15. 100-Year Floodplain Impacts per Stream System (Acres)

4.1.4 Groundwater and Hydrogeology

The majority of the Preferred Alternative, including the yard, maintenance facility and substations, would be constructed at-grade, and only minor changes to the movements of the shallow groundwater table likely would occur during site grading and construction. Where feasible, surface runoff will be directed to suitable outfalls through approved SWM facilities some of which provide environmental site design (ESD) stormwater management techniques as required by the Maryland Stormwater Management Act of 2007. In areas where this is not feasible, off site water quality mitigation will be identified. Any treated or untreated surface runoff will be released at suitable discharge velocities to prevent downstream erosive forces. The proposed tunnel would intercept groundwater within the underlying aquifers. With an expected maximum depth of 50 feet below existing grade, the tunnel could cause permanent, but localized, changes to groundwater flow patterns. The proposed tunnel would likely affect only local water movements and not the quantity or quality of groundwater. Impacts to recharge are not anticipated as recharge is highly variable within the aquifer because it is determined by local precipitation and runoff.

4.1.5 Aquatic Biota and Habitat

Impacts to aquatic habitats and species include loss of habitat from construction of infrastructure elements and the degradation of water quality resulting from construction and operation activities. The installation of proposed infrastructure elements, such as culvert extensions and closed drainage systems, would result in the permanent loss of approximately 5,183 linear feet of stream habitat. While some of these proposed improvements are being undertaken to address local drainage and flooding problems, the proposed activities could lead to direct loss of fish and other aquatic biota within the construction zone and would permanently alter the localized habitat. Northeast Branch would be affected when the in-stream piers of an existing bridge would be replaced with larger piers. Benthic organisms, such as macroinvertebrates, would be impacted by in-stream construction more so than fish, as they are relatively stationary. However, fish mortality is also a possibility as they can be trapped in pools during dewatering of the channel. Most of the species expected to be impacted are acclimated to disturbed settings and would be likely to recolonize temporarily disturbed areas, though the communities are unlikely to be identical to those present prior to construction.

4.1.6 Avoidance and Minimization

Waters of the U.S. and Wetlands

MTA has strived to avoid impacts to WUS and wetlands wherever possible through design solutions, including shifting the transitway alignment, adjusting construction work areas, and using retaining walls and ballast curbs to minimize the area of disturbance. The following measures are currently included in the design:

- Retaining walls along Veterans Parkway to minimize impacts to wetlands located north and south of the roadway and along the proposed Rock Creek trail connection to avoid direct impacts to Wetland GB-8
- Shifting the transitway alignment to the south side of Veterans Parkway to avoid the extensive tributary and wetland system associated with Brier Ditch
- Use of ballast curb, effectively creating a retaining wall condition, where the proposed transitway and
 the widened existing roadways would parallel stream and ditch edges to reduce horizontal
 encroachment into existing streams or ditches and minimize the overall LOD.

Floodplains

Several measures designed to minimize, restore, and preserve natural and beneficial floodplain values would be considered as the project design advances, including minimizing fill within the floodplain, returning disturbed areas to natural contours, using minimum grading requirements, reducing compaction, and minimizing vegetation removal.

Groundwater and Hydrogeology

Impacts to groundwater have been minimized, as much of the Preferred Alternative would occupy existing transportation rights-of-way and other paved surfaces. Stormwater runoff from these surfaces will be managed in accordance with MDE guidelines.

Aquatic Biota and Habitat

MTA has and continues to strive to avoid long-term water quality and quantity impacts to aquatic biota by minimizing the amount of new impervious surface associated with the transitway, yard, and maintenance facility. Where practicable, MTA has aligned the transitway and located associated facilities in areas of existing pavement and impervious surfaces, such as the Lyttonsville Yard site.

Project-related riparian impacts to a tributary to Paint Branch along Paint Branch Parkway, impacts to migratory fish species using the Paint Branch tributary, and stormwater discharge to Paint Branch were cited as concerns by the NMFS during the agency field review of the project on May 8th and 9th, 2012. In response to these concerns, MTA shifted this portion of the transitway south to minimize impacts to the riparian zone. In addition, the project has been designed so that stormwater associated with the transitway would not be discharged directly into the tributary of Paint Branch.

As part of project-wide avoidance and minimization efforts, the footprint of the Glenridge Maintenance Facility was shifted east to minimize impacts to a tributary of Brier Ditch.

MTA will continue to coordinate with the NMFS and other regulatory agencies as project design advances to identify measures to avoid or minimize:

- Creation of in-stream barriers that block migratory fish from upstream spawning ground
- Alterations of stream configuration, characteristics and hydrology
- Incremental changes to in-stream water quality from deforestation of the riparian zone

MTA will design proposed culverts and bridges to MDE standards to avoid or minimize secondary and cumulative impacts to migratory fish and to avoid alteration of habitat.

MTA will prepare a FCP, or similar, as the project design advances and will detail additional impact avoidance and minimization techniques to be applied during construction.

4.1.7 Wetland and Stream Mitigation Site Identification

Impacts to aquatic resources and those that cannot be minimized using practicable measures, require mitigation through mitigation banking credits, in-lieu fees, or permittee-responsible mitigation using a watershed approach that is the establishment/creation, enhancement, and preservation of aquatic resource functions.

Traditionally, mitigation requirements under Section 404 are determined by the ratio of wetland acres replaced to wetland acres lost as the result of project implementation. Emergent wetlands are typically mitigated on a 1:1 replacement basis, while forested and scrub-shrub wetlands are mitigated at a 2:1 ratio. The decision to replace function, acreage, or both, may be adjusted at the discretion of the USACE or MDE, depending on the quality of the affected resource and the practicability of the proposed mitigation.

Table 16 provides potential acreage impacts and requirements for wetland compensation based on typical replacement ratios.

| Table 16. | Projected | Wetland | Compensation | Ratios |
|-----------|------------------|---------|--------------|---------------|
| | | | | |

| Cowardin Class ¹ | Wetland Acres Impacted | Wetland Acres Compensation Required (Replacement Ratio) |
|-----------------------------|------------------------|--|
| Palustrine Forested | 0.52 | 1.04 (2:1) |
| Palustrine Emergent | 0.25 | 0.25 (1:1) |
| Total | 0.77 | 1.29 |

The MTA will also mitigate for unavoidable impacts to streams and palustrine open water systems (POWs) by replacing affected functions, when feasible. The determination of mitigation measures for waterway and open water impacts by federal and state regulatory agencies typically considers the size, stream order, and location. Other mitigation measures, such as removal of fish blockages, riparian buffer enhancements, and water quality improvements, also may be required. Table 17 provides potential linear feet stream impacts and open water acreage impacts and requirements for stream mitigation based on typical replacement ratios.

Table 17. Projected Stream and Open Water Compensation Ratios

| Cowardin Class ¹ | Wetland Acres Impacted | Linear Feet Impacted | Compensation Required (Replacement Ratio) |
|-----------------------------|---------------------------|----------------------|---|
| R2/R4 | N/A | 5,152 | 5,152 (1:1) |
| POW | 0.11 | N/A | 0.11 (1:1) |

The compensatory mitigation package will be designed to fulfill the mitigation requirements, as well as meet the resource protection goals of natural resource agencies.

Anticipating the requirement for wetland and stream mitigation of unavoidable impacts, the MTA conducted a mitigation site search, which included the potential for contributing to an established wetland and stream mitigation bank, and simultaneously coordinated with reviewing agencies regarding potential mitigation, in accordance with the Mitigation Rule hierarchy. The mitigation banking organizations that MTA consulted with included EPA, USACE, and Ecotone, Inc. Currently, no active mitigation banks are located within, or near, the study area watersheds.

The project will be required to do permittee responsible mitigation to compensate for unavoidable wetland and stream impacts due to the general lack of approved wetland/stream mitigation banks. Payment into the MDE Wetland Compensation Fund is not an option as permittee mitigation is available and feasible.

A preliminary search was conducted to locate sites with the highest potential for wetland creation or restoration with emphasis on "in-kind" replacement, first on-site and then within specific sub-watersheds to be affected, or the larger watershed if on-site locations are not available.

Wetland Mitigation Site Identification

The mitigation site selection process focused on areas within the USGS-designated watersheds impacted by the project corridor. This designation is represented by Hydrologic Unit Codes (HUC) 02070010 -- Middle Potomac-Anacostia-Occoquan watershed and the Middle Potomac-Catoctin.

In addition to the sites previously identified in the DEIS, a desktop review was conducted in order to identify new sites, and in particular to locate potential sites within the Anacostia watershed. Additional sites were first located using the NRCS Soil Survey for Montgomery and Prince George's counties, USGS topographic maps, digital MDNR wetland inventory maps, digital USFWS national wetland inventory maps, Maryland Department of Assessment and Taxation property maps, and the online Watershed Resource Registry (WRR) developed by the EPA in partnership with other agencies. Land cover types and areas displaying characteristics of poor drainage were identified using Bing aerial photographs.

A windshield survey and then on-site investigations were performed for selected sites. Additional potential mitigation sites were selected based upon the following criteria: presence of hydric soils, hydrology, landscape position, vegetation, habitat and water quality, and potential constraints. These sites are summarized in Table 18.

 Table 18. Potential Wetland Mitigation Sites

| | 10 101 1 01011 | tiai ii otiai a | winigation one | | | |
|--------------|---------------------|--------------------|---------------------------------|--|----------------------------------|---|
| Site ID | Watershed | County | Latitude/ Longitude | Location Description | Potential Creation (acres) | Existing Conditions |
| PL-AR-8 | Anacostia River | Prince George's | 38°52′11.07″N/ 76°52′42.82″W | Northeast of Forest Rd. and west of MD 704 | 0.70 | This site consists of an open field located on the south side of Cattail Branch, a tributary of Beaverdam Run. This parcel has a wetland swale that bisects the site along the southern edge. The site currently exhibits a perched hydrology. |
| PL-AR- 21 | Northwest Branch | Montgomery | 38°58′28.82″N/ 77°06′11.33″W | South of the intersection of Hamilton Street and 40th Avenue | 0.95 | This site is situated on the east side of an unnamed tributary of Northwest Branch. The existing bioretention pond could be expanded to include an area north of the pond that is currently a maintained open space. The bioretention pond appears to be at capacity for treating runoff of the adjacent parking lot as aerial photography shows the parking lot flooded at times. |
| PL-AR- 23 | Northeast Branch | Prince George's | 39°58′13.93″N/ 76°54′41.85″W | Southeast of the intersection of Kenilworth Avenue and Good Luck Road | 1.42 | This site consists of an abandoned parking lot located within the 100-year floodplain of Brier Ditch. The parking lot is flooded for most of the year due to groundwater seeps that flow into this area from the adjacent hillside. Common reed (<i>Phragmites australis</i>) is growing within the parking lot in several places. |
| PL-AR- 24 | Northwest Branch | Prince George's | 38°59′11.23″N/ 76°57′47.48″W | North of University Boulevard (MD 193), approximately 850 feet east of West Park Drive | 2.13 | This site is located within the 100-year floodplain of Northwest Branch of the Anacostia River. The site is currently being used as an archery range. Forested wetlands border the north and south sides of the site. |
| PL-RC-9 | Rock Creek | Montgomery | 39°04′02.00″N/ 77°06′12.10″W | West of Viers Mill Rd and southwest of Aspen Hill Rd., within "Parklawn Soccer Fields" | 4.30 | This site contains hydric soils and is adjacent to a large forested wetland. There is little elevation difference between the site and the forested wetland, so little grading would be necessary. A paved trail parallels the tree line along the southwest side of the site; this would need to be removed or relocated. |
| PL-RC- 74 | Rock Creek | Montgomery | 38°58′28.82″N/ 77°06′11.33″W | North of Oskaloosa Dr. | 2.36 | ICC RC-74. Potential exists at this site for stream restoration, wetland creation, wetland enhancement, riparian enhancement, and reforestation. Historically, the site hydrology was influenced by beavers and the floodplain was dominated by wetlands. |

Stream Mitigation Site Identification

The regulatory agencies target compensatory stream mitigation restoration projects to replace stream functions when feasible. In addition to stream channel improvements, mitigation measures for waterway impacts consider the size, stream order, and location of the stream to determine appropriate stream mitigation. Other mitigation measures such as removal of fish blockages, riparian buffer enhancements, and water quality improvements may be used at the agencies' discretion.

As for wetlands, the stream mitigation site-selection process focused on locating stream segments with the highest potential for restoration within the USGS-designated watershed impacted by the project corridor. This designation is represented by Hydrologic Unit Code (HUC) 02070010- Middle Potomac-Anacostia-Occoquan watershed within Montgomery and Prince George's counties. Under the State of Maryland watershed designations, the Purple Line project would impact 5,183 linear feet of intermittent and perennial streams and 0.09 acre of palustrine open water in the Rock Creek, Sligo Creek, Northwest Branch, Indian Creek, and Lower Beaverdam Creek sub-watersheds. However, mitigation for impacts to the 363 linear feet of ephemeral channels is not required by USACE or MDE, and is therefore, not included in the project estimate of required mitigation.

The twelve stream sites previously identified in the DEIS were narrowed down to 8 sites by removing sites that were entirely concrete-lined channels, and combining sites that were adjacent segments of stream. Since the Inter-County Connector (ICC) alignment crosses the same sub-watersheds as the Purple Line project, additional sites were identified from a list of ICC mitigation sites that were not carried forward for that project (SHA 2004). The list of potential mitigation sites for the ICC had been compiled in 2004 from published documents (previous mitigation site searches and watershed studies) and input from federal, state, and local agencies (SHA 2004). Emphasis was placed on first and second order streams, and potential mitigation sites were compiled in a database inventory (SHA 2004). The ICC mitigation database was revisited for potential Purple Line mitigation projects, and 21 stream mitigation sites that were located in the impacted watersheds but have not been pursued for ICC mitigation were considered for the Purple Line stream mitigation, for a total of 29 potential stream mitigation sites.

Evaluation of the potential mitigation sites has been performed through desktop analysis and on-site investigations. Potential stream mitigation sites were prioritized using the following criteria: bank erosion, floodplain condition, riparian vegetation, habitat and water quality, feasibility, additional benefits, and location.

A desktop assessment of site location was performed using GIS to determine 20% of the ranking score. Stream mitigation sites ranked high for location if they are close to the project alignment (less than 5 miles), located in the same sub-watersheds as the stream impacts, comprise headwater streams, and provide green infrastructure linkage.

The remaining 80% of the total stream ranking score was determined during a field visit. Stream sites that show severe bank erosion, are disconnected from the floodplain, or have poor existing in-stream habitat opportunities were scored high as potential restoration sites. The riparian vegetation criteria gives more points to sites located in urban or agricultural areas where additional riparian buffer could have significant water quality benefits, and sites that have an existing riparian forest will score low for riparian vegetation. Project feasibility was determined by construction access, and was rated on proximity to a public road. Sites within 500 feet or less of a public road scored the highest for feasibility. Additional points were added to sites that can provide benefits such as utility conflict resolution, fish passage restoration, or floodplain creation. All of these criteria (bank erosion, floodplain condition, riparian

vegetation, habitat and water quality, feasibility, and additional benefits) were evaluated through on-site observations during the field visit.

Each site was scored on both the field and desktop criteria, for a total of 100 points. The higher the total score, the more suitable the site is for potential stream mitigation. Site rankings may be further refined in the future to give preference to sites that can accommodate both stream and wetland mitigation at one location, or to sites that are located entirely on public property.

A total of seven sites were retained after the field investigations and are described in Table 19.

Table 19. Potential Stream Mitigation Sites

| Site ID | Watershed | Sub- Watershed | County | Latitude/ Longitude | Location Description | Stream Length (Linear Ft) | Existing Conditions |
|--|-----------|-----------------------------|--------------------|---------------------------------|---|---------------------------------|--|
| AR-1 | Anacostia | Lower Beaverdam Creek | Prince George's | 38°55′42.43″N/ 76°53′39.36″W | South of MD 202 and east of US 50 | 300 | This site consists of the mouth of Cattail Branch and its confluence with the mainstem of Lower Beaverdam Creek. Barriers to fish passage exist at both the box culvert under Landover Road and at the mouth of Cattail Branch, which is a concrete lined channel. A significant amount of channel and bank erosion is present at the confluence of Cattail Branch and Lower Beaverdam Creek. |
| AR-2, AR-3, AR-4, AR-8, AR-9 | Anacostia | Lower Beaverdam Creek | Prince George's | 38°52′11.07″N/ 76°52′42.82″W | East and West of the intersection Martin Luther King Jr. Highway | 4,570 | This site is associated with Cattail Branch, a tributary to Lower Beaverdam Creek. Several fish barriers exist along the corridor at road and utility crossings. Stream banks are vertical and eroding, particularly along park areas where there is little riparian buffer. Severe bank and channel erosion exists downstream of the culverts under Landover Road (AR-2) and Barlowe Road (AR-9). |
| AR-21 | Anacostia | Northwest Branch | Prince George's | 38°56′58.20″N/ 76°57′06.55″W | South of Hamilton St., within Magruder Park | 1000 | This site is associated with an unnamed tributary of Northwest Branch. The stream channel exhibits some instability and moderate bank erosion due to historical straightening. Located within Magruder Park. Good opportunity for stream buffer reforestation. |
| AR-22 | Anacostia | Lower Beaverdam Creek | Prince George's | 38°56′10.33″N/ 76°54′16.42″W | Southwest of the intersection of Otis Street and Osborn Road | 650 | This site is associated with an unnamed tributary of Lower Beaverdam Creek. The channel is deeply incised and banks have severe erosion. Sewer infrastructure is exposed along the channel. The stream flows through an in-line stormwater pond along Otis Street, which is rapidly filling with sediment from upstream bank erosion. |

Table 19. Potential Stream Mitigation Sites (continued)

| Site ID | Watershed | Sub- Watershed | County | Latitude/ Longitude | Location Description | Stream Length (Linear Ft) | Existing Conditions |
|-----------------|------------|---------------------|--------------------|---------------------------------|---|---------------------------------|---|
| AR-23 | Anacostia | Northeast Branch | Prince George's | 39°58′13.93″N/ 76°54′41.85″W | Southeast of the intersection of Kenilworth Avenue and Good Luck Road | 4,000 | The mainstem of Brier Ditch is contained within a trapezoidal channel that has vertical unvegetated banks for most of its length. Some areas along the banks have been reinforced with concrete and stone, some of which, have fallen into the stream. Exposed sewer lines within the stream reach, exposed concrete pipes, and a fish blockage could all be restored and linked. |
| NW-49, NW-50 | Anacostia | Northwest Branch | Mont- gomery | 39°05′45.27″N/ 77°00′53.57″W | South of Stonegate Elem. and north of Bonifant Rd. | 2,700 | This site is associated with an unnamed tributary to Northwest Branch. The stream channel is disconnected from its floodplain and has bank stability conditions that are causing bank erosion, in-stream sedimentation, and loss of property. Based on 2003 data collected by SHA, the reach has poor habitat, a poor benthic community, and a poor fish community. |
| RC-74 | Rock Creek | Rock Creek | Mont- gomery | 38°58′28.82″N/ 77°06′11.33″W | Southeast of Redland Rd. | 4106 | Degraded channel with moderate bank erosion and fair instream habitat. Channel segment is located within a large floodplain corridor mostly vegetated by non-native grass species. Excellent opportunity to create forested wetlands connected to the stream channel. |

Results of Wetland and Stream Agency Field Reviews

Field reviews with the USACE and MDE were conducted on October 25, 2012 and November 28, 2012 to gain concurrence on the proposed wetland and stream mitigation sites. The materials distributed at the agency field reviews are included within Appendix F. Based on the comments from the USACE and MDE during the field review, some of the proposed wetland and stream mitigation sites were dropped from further consideration as detailed in the meeting minutes in Appendix E. Those wetland and mitigation sites moving forward are shown in Table 20. The potential mitigation sites total 6.05 acres of potential wetland mitigation and 16,560 linear feet of potential stream mitigation. The linear feet of potential stream mitigation does not factor potential mitigation credit for stormwater management (SWM) BMP opportunities associated with some sites.

| Site Name | Site ID | Type of Mitigation | Potential Wetland Acreage | Potential Stream Length | Location | Watershed | Property Ownership |
|--------------------------------|--------------------------------------|-----------------------|---------------------------------|-------------------------------|------------|-----------------------------|-----------------------|
| Cattail Branch | AR-2 AR-3 AR-4 AR-8 AR-9 | Stream & BMP's | | 4,570 L.F. | Landover | Lower Beaverdam Creek | Public |
| | AR-8 | Wetland | 0.70 Acres | | | | |
| Crabbs Branch | RC-74 | Stream | | 5,360 L.F. | Rockville | Rock Creek | Public |
| | RC-74 | Wetland | 3.22 Acres | | ROCKVIIIE | NOCK CIECK | I UDIIC |
| Brier Ditch | AR-23 | Stream & BMP's | | 4,000 L.F. | Riverdale | Northeast | Public/ |
| | AR-23 | Wetland | 1.42 Acres | | | Branch | Private |
| Rolling Stone Tributary | NW-49 NW-50 | Stream & BMP's | | 2,700 L.F. | Colesville | Northwest Branch | Public |
| Adelphi Manor Archery Range | AR-24 | Wetland | 2.13 Acres | | Adelphi | Northwest Branch | Public |
| Total Mitigation Estimate: | | | 7.47 Acres | 16,630 L.F. | | | |

Table 20. Conceptual Wetland and Stream Mitigation Sites

4.1.8 Mitigation

MTA will mitigate project impacts to WUS, including wetlands, by complying with the Federal Compensatory Mitigation Rule (33 CFR Parts 325 and 40 CFR Part 230), as well as stipulations from federal and state resource agencies.

MTA will coordinate with the regulatory agencies to develop a project-wide compensatory mitigation strategy to offset impacts to wetlands and aquatic resources.

4.2 Short-Term Construction Effects

4.2.1 WUS and Wetlands

The following short-term effects have been preliminarily identified:

- An intermittent stream (WUS GB-2) located within the Columbia Country Club would be crossed during construction of the transitway.
- Approximately 101 linear feet of in-stream construction would occur within Rock Creek (WUS GB-6) to deconstruct, remove, and replace the existing bridge and bridge pier.
- Approximately 370 linear feet of stream diversions would result within the larger perennial streams, such as Northwest Branch (WUS 006) and Northeast Branch (WUS 018), to replace in-stream piers to widen existing bridges.
- Reconstruction of a vegetated stormwater management basin east of the intersection of East-West Highway and Veterans Parkway would affect 0.26 acre of a palustrine emergent wetland (W081) and 83 linear feet of an intermittent stream (WUS 082).

- Reconstruction of a vegetated stormwater management basin north of East-West Highway and west
 of Baltimore Washington Parkway would affect 0.09 acre of palustrine emergent wetland (W024) and
 0.13 acre of palustrine forested wetland (W024), as well as 83 linear feet of an intermittent stream
 (WUS023).
- An impact of approximately 109 linear feet of an intermittent stream (WUS 038) would result north of Ellin Road to facilitate cleaning of existing culverts under Ellin Road and facilitate positive flow through the triple box culvert under the transitway south of Ellin Road.

4.2.2 Surface Water

Short term effects to surface waters would include physical disturbances or alterations to the ground surface over which water flows, accidental spills of construction materials, and sediment releases into the surface water that could affect aquatic life. Construction of the Glenridge Maintenance Facility could permanently affect up to 522 linear feet of streams associated with the Brier Ditch tributary system. The streams that currently flow within the proposed footprint of this Facility would be placed in closed drainage systems or relocated into adjacent culverts.

Short-term effects on designated scenic or wild streams would occur during construction when equipment is placed near stream banks or in-stream diversions are implemented during pier removal.

4.2.3 Floodplains

Short-term effects to the 100-year floodplains would occur during culvert and bridge construction, especially during the deconstruction, removal, and replacement of the existing Rock Creek bridge. Small negligible, approximately up to 6 inches, increases to the 100-year floodplain may result from the proposed configurations of the new culvert and bridge construction.

4.2.4 Groundwater and Hydrogeology

Construction of the Plymouth Street tunnel would have a short-term impact to localized groundwater resources as de-watering activities would be required to maintain a dry work zone. During construction, runoff would be directed to surface waters through sediment trapping and/or pumping facilities. Treatment of dewatering activities will be routed through filtering systems (dewatering basins, filter bags, portable sediment tanks, etc.) prior to discharge to surface waters.

4.2.5 Aquatic Biota and Habitat

Short-term impacts to aquatic biota and habitat resulting from project construction include physical disturbances or alterations to habitat, accidental spills either directly into water resources or indirectly through surface runoff, and sediment releases that could affect aquatic life. Earth-moving activities would expose soils that, if left in an unstable condition, could enter waterways during storms.

Increased sediment loads can destroy or damage fish spawning areas and macroinvertebrate habitat. An accidental sediment release in a stream can clog the respiratory organs of fish, macroinvertebrates, and the other members of their food web (Barrett 1995). Additional suspended sediment loads have also been shown to cause stream warming by reflecting radiant energy (CWP 2003). Many metal contaminants, bound to the small particles, are transported during accidental releases of sediment. Barrett (1995) found that the initial response to increased sedimentation due to construction was a reduction in numbers and species of fish and macroinvertebrates. This reduction in fish numbers in areas of siltation was generally reversed within 12 months of the cessation of construction activity. While sediment releases are possible

during construction, the potential for sediment related effects will be greatly minimized through the strict adherence to MDE approved sediment and erosion control plans.

MTA will provide for work area containment, use and storage of fuels and other potential contaminants, a spill management plan, and water quality and quantity controls to protect aquatic biota and habitat based on current regulations and project permit conditions, such as the project's MDE-approved plans for sediment and erosion control and stormwater management.

4.2.6 Avoidance and Minimization

MTA will minimize the area of disturbance to Maryland-designated wild and scenic rivers by clearly marking and fencing the work area and prohibiting activity outside the work area.

MTA will minimize the area of disturbance to Maryland-designated wild and scenic rivers by clearly marking and fencing the work area and prohibiting activity outside the work area. During construction, runoff will be directed to surface waters through stormwater management or treated as it is being infiltrated into the local groundwater through ESD stormwater facilities.

MTA will not undertake in-stream construction during state-mandated stream closure periods.

4.2.7 Mitigation

MTA will restore Sligo Creek approximately 180 feet upstream and 180 feet downstream of the project bridge to provide long-term benefits and enhance its inherent characteristics.

MTA will submit project plans to the MDNR for evaluation in compliance with the Maryland Scenic and Wild Rivers Act. MTA would provide mitigation if MDNR determines that the project would jeopardize the scenic value of the designated rivers.

MTA will perform hydraulic and hydrologic studies. If these studies find that the flood elevation would change, floodplain storage mitigation will be implemented, if required.

MTA will submit project plans to MDE for approval of structural evaluations, fill volumes, proposed grading elevations, structural flood-proofing, and flood protection measures in compliance with FEMA requirements, USDOT Order 5650.2, "Floodplain Management and Protection," and Executive Order 11988.

MTA will obtain applicable environmental permits for water resources.

MTA will develop an Erosion and Sediment Control Plan, in accordance with the Stormwater Management Act of 2007, which will specify proper slope and soil stabilization techniques, erosion and sediment controls, and stormwater management facilities.

MTA will restore and stabilize temporarily disturbed aquatic habitat at the end of construction according to a restoration plan developed in coordination with the USACE and MDE. The permits related to these activities, as well as the required MDE Waterway Construction permit, are intended to protect aquatic biota and water quality and ensure that the Preferred Alternative complies with federally-mandated water quality standards.

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| | Appendix A – List of Acronyms and Abbreviations |
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APPENDIX A

List of Acronyms and Abbreviations

ADA Americans with Disabilities Act
BIBI Benthic Index of Biotic Integrity
BMP Best Management Practice
CBD Central Business District
CDP Census Designated Places
CLRP Constrained Long Range Plan
COMAR Code of Maryland Regulations

CWA Clean Water Act
DC Washington, DC

EPA Environmental Protection Agency

ESD Environmental Site Design

FEIS Final Environmental Impact Statement

FEMA Federal Emergency Management Administration

FIBI Fish Index of Biotic Integrity
FIRM Federal Insurance Rate Maps

HUC Hydrologic Unit Code
ICC Inter-County Connector
LOD Limit of Disturbance
LRT Light Rail Transit

MGS Maryland Geological Survey

MARC Maryland Area Regional Commuter
MBSS Maryland Biological Stream Survey

MCDEP Montgomery County Department of Environmental Protection

MDE Maryland Department of the Environment
MDNR Maryland Department of Natural Resources
MDOT Maryland Department of Transportation

M-NCPPC Maryland-National Capital Parks and Planning Commission

MSHA Maryland State Highway Administration

MSRA Management Reauthorization Act MTA Maryland Transit Administration

MWCOG Metropolitan Washington Council of Governments NSDWR National Secondary Drinking Water Regulations

NEPA National Environmental Policy Act NMFS National Marine Fisheries Service NRCS Natural Resources Conservation Service

NWI National Wetland Inventory PFA Priority Funding Areas

PGDER Prince George Department of Environmental Resources

PHI Physical Habitat Index POW Palustrine Open Water

RHAB Rapid Bioassessment Protocols
SNE Significant Nexus Evaluation

WUS

SSTC Silver Spring Transit Center
SWM Stormwater Management
TOD Transit Oriented Development
TMDL Total Maximum Daily Load
TNW Traditional Navigable Waterway

UMD University of Maryland

USACE United States Army Corps of Engineers

USC United States Code

USDA United States Department of Agriculture
USDOT United States Department of Transportation
USFWS United States Fish and Wildlife Service

Waters of the United States

USGS United States Geological Survey

WMATA Washington Metropolitan Area Transit Authority

WQL Water Quality Limited WRR Watershed Resource Registry

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APPENDIX B

Glossary/Terminology

Anadromous: pertaining to fish that spend a part of their life cycle in the sea and return to freshwater streams to spawn.

Anthropogenic: induced or altered by human activity.

Aquifer: a water bearing rock, rock formation, or group of rock formations.

At-grade: a junction at which two or more transport axes cross at the same level (or grade).

Below-grade: recessed below ground level.

BIBI: Benthic Index of Biotic Integrity. An index that compares the macroinvertebrate community within a given stream to reference macroinvertebrate communities in the least-impaired streams using a series of metrics.

Capital Crescent Trail: the existing paved trail between Bethesda and Georgetown. When the trail alongside the Purple Line is built, the Capital Crescent Trail will extend all the way from Silver Spring to Georgetown.

Catadromous fish: fish that live most of their lives in freshwater, but migrate to seawater to spawn. American eels are catadromous.

COMAR: Code of Maryland Regulations. The official compilation of all administrative regulations issued by agencies of the state of Maryland.

CWA: Clean Water Act. The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters.

Conductivity: a measure of the ability of water to conduct an electric current. It is related to the type and concentrations of dissolved ions in the water.

Dissolved oxygen (DO): the amount of free (not chemically combined) oxygen dissolved in water, wastewater, or other liquid, usually expressed in milligrams per liter, parts per million, or percent of saturation.

Endangered: an organism of very limited numbers that may be subject to extinction and is protected by law under the Endangered Species Act.

Ephemeral stream: a stream with flowing water only during and for a short duration after precipitation events in a typical year. Groundwater is not a source of water for the stream.

Epifaunal: "epi" means surface, and "fauna" means animals. Thus, "epifaunal substrate" are structures in the stream (on the stream bed) that provide surfaces on which animals can live. In this case, the animals are aquatic invertebrates (such as aquatic insects) or benthic fish species. These insects live on or under cobbles, boulders, logs, and snags, and the many cracks and crevices found in these structures. In general, older decaying logs are better suited for insects to live on/in than newly fallen "green" logs and trees.

FEMA: Federal Emergency Management Agency. FEMA has ten regional offices, and two area offices. Each region serves several states, and regional staff work directly with the states to help plan for disasters, develop mitigation programs, and meet needs when major disasters occur.

BIBI: Benthic Index of Biotic Integrity. An index that compares macroinvertebrate communities within a given stream to reference fish communities in the least-impaired streams using a series of metrics.

FIBI: Fish Index of Biotic Integrity. An index that compares the fish community within a given stream to reference fish communities in the least-impaired streams using a series of metrics.

FIRM: Flood Insurance Rate Maps. Maps produced by the Federal Emergency Management Agency (FEMA) to determine the locations of flood risks and hazards.

Floodplain (100-year): the area adjacent to a stream that is on average inundated once a century.

Geographic information system (GIS): a computer system capable of storing and manipulating spatial data.

Groundwater: subsurface water and underground streams that can be collected with wells, or that flow naturally to the earth's surface through springs.

Groundwater recharge: increases in groundwater storage by natural conditions or by human activity. See also artificial recharge.

Georgetown Branch right-of-way: the land adjacent to the CSX railroad between Bethesda and Silver Spring (where the trail is today) that was dedicated to a future transit project.

Georgetown Branch interim trail: the crushed stone trail existing today in the Georgetown Branch right-of-way.

Headwater: is the furthest place in a stream from its estuary or confluence with another stream, as measured along the course of the stream.

Intermittent stream: streams that have flowing water during certain times of the year. Groundwater driven; runoff from rainfall or snowmelt is a supplemental source of water.

Limit of Disturbance: the boundary within which construction, materials storage, grading, landscaping, and related activities shall occur.

Maryland Area Regional Commuter: a regional/commuter rail system consisting of three lines in the Baltimore-Washington Metropolitan Area.

Macroinvertebrate: invertebrates visible to the naked eye, such as insect larvae and crayfish.

Maryland-National Capital Parks and Planning Commission: leaders who plan for orderly development and the protection of natural resources in Maryland's two suburban counties bordering the District of Columbia.

Maryland State Highway Administration: the state agency responsible for maintaining numbered Maryland highways outside of Baltimore City.

Maryland Transit Administration: the state-operated mass transit administration in Maryland; part of the Maryland Department of Transportation.

Maryland Department of Natural Resources Third Order Watersheds: statewide watershed designation using Strahler's (Strahler 1952 p. 1120) third order stream classification.

Metropolitan Washington Council of Governments: a regional organization of consisting of 21 local governments in the Washington Metropolitan Area, as well as members of the Maryland and Virginia state legislatures, the US Senate, and the US House of Representatives.

Metrorail: the rapid transit system in Washington, DC, and its surrounding suburbs.

Mitigation: efforts to reduce or compensate for adverse impacts.

National Environmental Policy Act: a United States environmental law that established a national policy promoting the enhancement of the environment; also established the President's Council on Environmental Quality (CEQ).

No Build: the baseline against which the environmental and community impacts of the Preferred Alternative are compared; consists of the transit service levels, highway networks, traffic volumes, and demographics forecasted for horizon year 2040.

Perennial streams: streams that flow year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow.

pH: the negative logarithm of the molar concentration of the hydrogen ion, or, more simply acidity.

Preferred Alternative: the build alternative that is studied in detail in the FEIS (this alternative is a modified/refined/updated version of the Locally Preferred Alternative).

Purple Line corridor: the general area between Bethesda and New Carrollton.

Relatively permanent: streams that flow year-round or have a continuous flow at least seasonally (typically three months).

Relocation: to move/change to a new place.

Right-of-way: legally granted access for the use of property.

Riprap: rock or other material with a specific mixture of sizes referred to as a "gradation," used to stabilize streambanks or riverbanks from erosion or to create habitat features in a stream.

Scenic and Wild River: a river that possesses outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar value(s).

SNE: Significant Nexus Evaluation. A significant nexus evaluation (SNE) assesses the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream TNWs. As a matter of policy, not law, the USACE requires performing a SNE on all intermittent non-navigable (not perennial) tributaries and their adjacent wetlands, even if the tributary's flow may be relatively permanent.

Spawning: the depositing and fertilizing of eggs (or roe) by fish and other aquatic life.

Study area: the geographic extent that is examined to assess impacts.

TMDL: Total Maximum Daily Load. A regulatory term in the U.S. Clean Water Act, describing a value of the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards.

TNW: Traditional Navigable Waterway. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.

Transit Center: a sheltered waiting area where multiple mass transportation routes converge; there are two on the alignment, the Silver Spring Transit Center and the Takoma/Langley Transit Center.

Turbidity: an optical measure of the clarity of water by light scattering from suspended and dissolved constituents in the water column.

Waters of the U.S.: all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; all interstate waters, including interstate "wetlands"; All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters.

Wild and Scenic River: certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations.

WQL: Water Quality Limited Segment. Portions of streams that are considered impaired by analyzing a wide variety of water quality monitoring data, including chemical grab samples, in situ measurements, continuous measurements, and biological data. After listing a stream as a WQL in Category 5 of the Integrated Report, the state is required to prioritize each waterbody's need for TMDL development.

Wetlands: those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

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| | Appendix C – Wetland Function-Value Evaluation Form |
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Wetland Function-Value Evaluation Form

| . 2 .1 | | | | | | Wetland I.D. W-GB8 |
|---|-------|-----------|--|--------|---------------------------|--------------------------------------|
| Total area of wetland $\frac{3.4}{\alpha ces}$ Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N | | | | | | Latitude Longitude |
| Adjacent land use Commercial forest, residential Distance to nearest roadway or other development ad | | | | | | Prepared by: DWR Date 2-14-12 |
| , | | | Contiguous undeveloped buffer zone presentN | | Wetland Impact: TypeArea | |
| Is the wetland a separate hydraulic system? N | | _ If n | not, where does the wetland lie in the drainage basin? lower portion | | | Evaluation based on: Office Field |
| How many tributaries contribute to the wetland? | 1 | | Wildlife & vegetation diversity/a | ıbunda | ance (see attached list) | Corps manual wetland delineation |
| | Suita | hilit | v Rationale P | rinci | nal | completed? Y / N |
| Function/Value | Y | N | | | • | omments |
| ▼ Groundwater Recharge/Discharge | | | 7,8,9,10,13,15 | / | only 6/14 qualifiers, met | , but wetland is definitely |
| Floodflow Alteration | 1 | | 1,3,4,5,6,7,9,16,11,13,14, | / | 13/18 | |
| Fish and Shellfish Habitat | | | 3 | | no permanent aquatic | hobitat |
| Sediment/Toxicant Retention | / | | 11,2,3,4,7,8,9,10,14,15,16 | / | 11/15 | |
| Nutrient Removal | | | 1, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15 | / | 13/14 | |
| → Production Export | | | 1,2,3,4,5,7,8,16,11,12,13 | / | 11/14 | |
| Sediment/Shoreline Stabilization | | $\sqrt{}$ | 3, 8, 9, 13, 15 | | 5/15 - wetland does | not border assoc. water course |
| wildlife Habitat | 1 | | 3,5,6,7,8,9,11,13,15,18, | | 13/21 | |
| Recreation | | | 1,4,5,7,11,12 | / | 6/12 | |
| Educational/Scientific Value | / | | 2,4,5,16,11,13, | | 6/16 | |
| Uniqueness/Heritage | | | 1,5,6,7,8,10,11,12,13,14, | | 16/31 | |
| Visual Quality/Aesthetics | | | 1,2,3,4,5,8 | | 6/12 | |
| ES Endangered Species Habitat | | | | | | |
| Other | | | • : | 1 | 95/151 of total qualit | iers met of principal functions |
| Notes: | | | | | * Refer to bac | kup list of numbered considerations. |

Wetland Function-Value Evaluation Form

| Total area of wetland 740 Human made? N | J | Is wet | tland part of a wildlife corridor? | <u> </u> | or a "habitat island"? N | Wetland I.D. W-60 Latitude Longitude |
|--|-----------|-------------|---|----------------|---------------------------|---|
| Adjacent land use residential, road, | | | | | | Prepared by: DWR Date 12/00/11 |
| Dominant wetland systems present PFO | | | Contiguous undevelo | | . • | Wetland Impact: TypeArea |
| Is the wetland a separate hydraulic system?N | | If 1 | not, where does the wetland lie | in the d | rainage basin? 0 wer | Evaluation based on: Office Field |
| How many tributaries contribute to the wetland?_ | _1 | | _Wildlife & vegetation diversit | ty/abunc | lance (see attached list) | Corps manual wetland delineation completed? Y N |
| Function/Value | Suit Y | abili N | (Reference #)* | Princ Funct | £ | omments |
| ▼ Groundwater Recharge/Discharge | / | | 7,8,9,13,15 | | 5/14 | |
| Floodflow Alteration | / | | 1,4,5,6,7,8,9,10,11,13, | | 14/18 | |
| Fish and Shellfish Habitat | | 1 | 1 | | wetland is terrestr | ial habitat |
| Sediment/Toxicant Retention | | | 1,4,7,8,9,10,12,14,14 | 5, / | 10/15 | |
| Nutrient Removal | / | | 1,3,4,6,7,8,11,12,13 | 3 / | 9/14 | |
| Production Export | / | | 1,2,3,5,7,8,10,11,12, | / / | 10/14 | |
| Sediment/Shoreline Stabilization | 1 | | 1,3,6,8,14 | | 5/15 | |
| ₩ildlife Habitat | / | | 1,3,6,7,8,11,13,15, 18,19,20,21 | / | 12/21 | |
| Recreation | | | 4, 5, 7, 12 | | 4/12 | |
| Educational/Scientific Value | 1 | | 2,3,4,5,9,10,11,13, | | 8/16 - not a prince | cipal function, must be >50% |
| ☆ Uniqueness/Heritage | | | 1,4,5,7,8,10,11,12,13,1 15,16,17,19,22,27, 1,2,3,4,6,8,9, | 4, / | 16/31 | |
| Visual Quality/Aesthetics | | | 1,2,3,4,6,8,9, | | 7/12 | |
| ES Endangered Species Habitat | | | | | no ES known to oc | |
| Other | | | | | only a small portion | of wetland resides within |
| Notes: | | | | | Study area* Refer to bac | kup list of numbered considerations. |

Wetland Function-Value Evaluation Form

| Total area of wetland ~1.5 Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? Y Latitude Longitude | | | | | | | |
|--|--|---------------|--|----------------|--------------------|--------------------------------------|--|
| Adjacent land use railroad veside | Latitude Longitude Prepared by: DWR Date 12-22-1 | | | | | | |
| Dominant wetland systems present PEM/P | 00 | ' | Contiguous undevelop | ed but | fer zone present N | Wetland Impact: TypeArea | |
| Is the wetland a separate hydraulic system? Now many tributaries contribute to the wetland? | Evaluation based on: Office Field Corps manual wetland delineation | | | | | | |
| Function/Value | | tabili / N | (Reference #)* | Princ Funct | <u>♣</u> | completed? Y / N | |
| Groundwater Recharge/Discharge | / | | 4, 7, 8, 9, 15, 16 | | 6/14 | | |
| Floodflow Alteration | / | | 2,3,4,5,6,7,8,9,10,11,13, | / / | 13/18 | | |
| Fish and Shellfish Habitat | 1 | | 7, 9, 10,17 | | 4/17 | | |
| Sediment/Toxicant Retention | / | | 1,2,3,4,5,7,8,9,10,11,12 18,14,15,16 2,3,4,5,7,9,11,12,13,14 | / | 15/15 | | |
| Nutrient Removal | V | | 23,4,5,7,9,11,12,13,14 | , / | 11/14 | | |
| → Production Export | 1 | | 1,2,12 | | 3/14 | | |
| Sediment/Shoreline Stabilization | V | | 3,4,6,8,12,13,15 | 8 | 7/15 | | |
| wildlife Habitat | / | | 5, 8,7,10,11,18,19, | | 7/21 | | |
| Recreation | | | 10,11,12, | | 3/12 | | |
| Educational/Scientific Value | / | | 9,10,12,13, | | 4/16 | | |
| ☆ Uniqueness/Heritage | / | | 1,5,6,8,10,12,13,14,15, | | 12/31 | | |
| Visual Quality/Aesthetics | | | 1,2,3,4,6,9,12 | / | 7/12 | | |
| ES Endangered Species Habitat | | | | | no ES occur within | | |
| Other | | | | | appears to be a | mitigation site | |
| Notes: | | | | | | kup list of numbered considerations. | |

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| Appendix D – Wetland Determin | nation Data Forms and Stream Features Field |
| | Sheets |
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| Date: 11-30-11 Project Site: Phyple line wus#: W951 |
|---|
| Observer(s) BG, HS |
| Stream Flow: Perennial: Intermittent Ephemeral |
| Gradient: 21% Classification: PHSBS epwent |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) X |
| Explain: Mornelized |
| Channel Has (check all that apply): Bed and Banks & OHWM Fore West clear, natural line impressed on the bank changes in character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition water staining the presence of litter and debris Discontinuous OHWM (explain): |
| Morphology: N/A Avg. Water Depth Avg. Water Depth D 5 |
| Channelized |
| Habitat and Pollutants: Substrate (predominant type (s)): |
| Habitat Complexity (characterize): |
| Bank Erosion: Severe Moderate Minor |
| Describe: Slumping |
| Silt Deposition: |
| Pollutants (observation / potential sources): 10 your 10 mounts of to sh |
| Stormwater Outfalls: 10 10 |

| Federally Listed species | Fish Spawn Areas |
|---|--|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | - 100° (|
| Riparian Zone: Development: | icial |
| Riparian vegetation: Forest | Shrubs Herbs |
| Dominant Species: Bumboo | (30m) 245 (1/10-16 A 1 1/23) |
| | one in the second of the secon |
| Riparian Buffer Width: | tomand Mark 121 early all and Egypty 2 |
| Approximate % Shading by Woody Speci | es: 95% |
| Notes: | The state of the control of the section |
| 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | |
| A THE ARTHUR TO THE ARTHUR AND THE ARTHUR AND THE ARTHUR AND ARTHUR ARTHUR AND ARTHUR | |
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| Date: 11-30-11 Project Site: Purple Line wus #: Wgb |
|---|
| Observer(s) B6, HS |
| Stream Flow: Perennial: Intermittent Ephemeral Gradient: 10/0 Classification: RAUBI |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line sediment sorting sediment sorting sediment sorting sediment sorting sediment sorting leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list): |
| Discontinuous OHWM (explain): Morphology: |
| Avg. Channel Width Depth Avg. Water Depth |
| Has stream morphometry been altered? <u>Nes</u> Describe: |
| Habitat and Pollutants: Substrate (predominant type (s)): |
| Habitat Complexity (characterize): |
| Dool complexes undercut banks |
| Bank Erosion: Severe Moderate Minor |
| Describe: |
| Silt Deposition: MINOV |
| Pollutants (observation / potential sources): |
| |
| Stormwater Outfalls: |

| Biological Habitat For Federally | (check all that apply) Listed species | # IIT | Fish Spawn Areas | | | | |
|-------------------------------------|---------------------------------------|-------|----------------------------|--------------------|---------------|--|--|
| Other Environmentally-Ser | nsitive Species | | Aquatic/Wildlife Diversity | | | | |
| Explain Findings: | | | | | · E | | |
| | | | | | We fill the | | |
| Riparian Zone: Development: | resident | ral | i, | 4 7 | | | |
| Riparian vegetation: | Forest | Shrub | | / Herbs_ | Included town | | |
| Dominant Species: | Dade wa | lnut, | brush | honeys | ndul, | | |
| Acer | rubrum | - ' | | Y == | . a store | | |
| Riparian Buffer Width: | 1001 | | i Pa | on a result to the | | | |
| Approximate % Shadin | g by Woody Species: | -50 | 1/3 | - | | | |
| Notes: | |] | 2 11 1 30% | ge I I I I I I | | | |
| | 1 74-79 | | | | 1 | | |

| Field Sheet |
|---|
| Date: 7-12-02 Project Site: Purple Line WUS#: 6P-2 |
| Observer(s) B6 + SW |
| Stream Flow: Perennial: Intermittent Ephemeral |
| Gradient: Classification: R4565 |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: likely manipulated during got course construction |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation thre presence of wrack line shelving sediment sorting sediment deposition multiple observed or predicted flow events abrupt change in plant community other (list): the presence of litter and debris Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width 8' Depth 3.5 Avg. Water Depth 21' |
| Has stream morphometry been altered? yes Describe: <u>culverted under</u> |
| Habitat and Pollutants: Substrate (predominant type (s)): Organic Habitat Complexity (characterize): Very low, lack of stable habitat |
| Bank Erosion: Severe Moderate Minor |
| Describe: |
| Silt Deposition: |
| Pollutants (observation / potential sources): none observed, but nutrient |
| loads probably excessive |
| Stormwater Outfalls: nane |

| Biological | • | heck all that apply): isted species | Fish Spawn Areas | | | | | |
|-------------------|-----------------------|--|------------------|--|--|--|--|--|
| Other Environ | nmentally-Sensiti | ve Species | A | Aquatic/Wildlife Diversity | | | | |
| Expla | ain Findings: | | | | | | | |
| | | 2 19 | -Legi | georgi svanni svanni sveni svani sva | | | | |
| Riparian Z | one: evelopment: _ | Columbia (| ountry | Club-golf course | | | | |
| Riparian | vegetation: | Forest | Shrubs | Herbs Herbs | | | | |
| Domina | ant Species: _ | maintained | lawn | argerise of taken I am no | | | | |
| | | | | Aviana tair lia vanisi aziri. | | | | |
| Riparian E | Buffer Width: | none | | [FT Bahand, Since | | | | |
| Approxima | ate % Shading | by Woody Species: | ~5% | NIMAO I | | | | |
| Notes: | ed h | a to see up a color | | | | | | |
| | | | | A mind - Simon - maked | | | | |
| 3 | ylin — a lin | a no a na nasalida and a na a na | | Section of the property of the | | | | |
| | | | | | | | | |

| Date: 11-30-11 Project Site: PNOLE Live WUS#: W963 |
|--|
| Observer(s) Bb. HS |
| Stream Flow: Perennial: Intermittent Ephemeral Gradient: 41% Classification: R45B3/4 |
| |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line sediment sorting sediment sorting secour multiple observed or predicted flow events sediment deposition abrupt change in plant community other (list): Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width |
| Has stream morphometry been altered? US Describe : |
| Channelized under bridge. |
| Habitat and Pollutants: Substrate (predominant type (s)): |
| Habitat Complexity (characterize): www.al - leaf podcs |
| for macros |
| Bank Erosion: SevereModerate Minor |
| Describe: |
| Silt Deposition: Moderate |
| Pollutants (observation / potential sources): Durky lot vuvo ff |
| |
| Stormwater Outfalls: |

| Biological Habitat For (chec all that apply): Federally Listed ্pecies | | Fish Spawn Areas | | | |
|--|---------------------|----------------------------|-----------------------|----------------|--|
| Other Environmentally-Sen | sitive Species | Aquatic/Wildlife Diversity | | | |
| Explain Findings: | | | | (0.159) | |
| | in the | N. C. | - ricenza | The Tone | |
| Riparian Zone: Development: | commercia | 1 / regid | entral | _M WE A | |
| Riparian vegetation: | Forest | Shrubs | Herbs_ | and a ma | |
| Dominant Species: | Box elder | , Bush | honeysudd | Le | |
| § <u>=</u> = | | | \ | _ 100 Br | |
| Riparian Buffer Width: | 750' | | al gard built posters | and family | |
| Approximate % Shading | g by Woody Species: | 80% | 0 | and the second | |
| Notes: | ofer of the first | 74 | -2-7 17W 1100 M | | |
| | 19N H = VI | | | | |
| V- | | | | | |

| Date: 1/-30-11 Project Site: PVPL LINE WUS #: Wyby |
|--|
| Observer(s) BG, HS |
| Stream Flow: Perennial: Intermittent Ephemeral |
| Gradient: Classification: R45B3 4 |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank changes in character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition water staining the presence of litter and debris destruction of terrestrial vegetation the presence of wrack line sediment sorting scour multiple observed or predicted flow events abrupt change in plant community other (list): |
| Morphology: Avg. Channel Width |
| Habitat and Pollutants: Substrate (predominant type (s)): Gvo vel/Sand |
| Habitat Complexity (characterize): |
| undercut bonks, not was |
| Bank Erosion: SevereModerate< Minor |
| Describe: Slumping |
| Silt Deposition: |
| Pollutants (observation / potential sources): |
| Stormwater Outfalls: |

| Biological Habitat For (Federally I | check all that apply): Listed species | Fish Spawn Areas | | | |
|---|--|------------------|---|--|--|
| Other Environmentally-Ser | sitive Species | | | | |
| Explain Findings: | | | after appropriate | | |
| · | | | par Tan | | |
| Riparian Zone: Development: | Residenta | l | man i i i i i i i i i i i i i i i i i i i | | |
| Riparian vegetation: | Forest | Shrubs <u></u> | Herbs | | |
| Dominant Species: | Tulip Poplar, | box elder | Herbs honey suddle | | |
| = = = | | | The Part | | |
| Riparian Buffer Width: | 750° | (4) | and the same the part of | | |
| Approximate % Shading | g by Woody Species: | 80% | 1994 | | |
| Notes: | and the state of t | e Rose | Fire to All The Transfer | | |
| | ante a un | | - Zie | | |

| Field Sheet (Liggs tart its reach) of a runder ladge of |
|--|
| Date: 7-10-02 Project Site: Purple Line WUS#: GB-6 |
| Observer(s) 5. Williamon |
| Stream Flow: Perennial: Intermittent Ephemeral R2UB1 Gradient: 1% Classification: R |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: straightened under bridge w/ bridge pier in center |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank changes in character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition water staining the presence of litter and debris destruction of terrestrial vegetation thre presence of wrack line sediment sorting sediment sorting scour multiple observed or predicted flow events abrupt change in plant community other (list): |
| Discontinuous OHWM (explain): Morphology: |
| Avg. Channel Width 60 Depth 5 Avg. Water Depth 12-24" Has stream morphometry been altered? YES Describe: Straightened |
| Habitat and Pollutants: Substrate (predominant type (s)): |
| Habitat Complexity (characterize): deep pools, but few areas with |
| stable cover + ritile sequences - average |
| Bank Erosion: Severe Moderate Minor |
| Describe: <u>Some areas are severe</u> |
| Silt Deposition: heavy throughout |
| Pollutants (observation / potential sources): 5 tormwater runoff, 5ewer |
| leak likely |
| Stormwater Outfalls: none observed |

| Biological Habitat For (check all that apply): Federally Listed species | Fish Spawn Areas | | | |
|---|--|--|--|--|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity | | | |
| Explain Findings: | | | | |
| 1971 Terements | E Policie Tenant | | | |
| Riparian Zone: Development: parkland, hike | er/biler trail on LB | | | |
| Riparian vegetation: Forest S | | | | |
| Dominant Species: Huliptree, green | | | | |
| Am. syramore | Transaction of the American State (chock and apply). | | | |
| Riparian Buffer Width: ~1000 ft in 5t | | | | |
| 1 - |) % | | | |
| Notes: | No. stands at all. | | | |
| | freadcity is a second of the s | | | |
| Alter a vice promoting to the contract of the | and it part seem to entire the seem of the | | | |
| | Trialipe J MVP - 3 aconnitrios-(C. F.) | | | |
| THE CLEANER DISW DVA 2 | | | | |
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| | Habiton and Pollotants Substitute (a): | | | |
| | Habitet Compliant strategices of graph | | | |
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|--|---|---------------------------------|---------------------------|--|
| Project/Site: Kur Dle Live | City/C | County: Montes | onlu Samp | ling Date: - 26- |
| Applicant/Owner: MTA | 101 1 TO 10 | | | npling Point: WTP8-1 |
| Investigator(s): BG AT | Secti | on, Township, Range: | _ Oldic Odi | inpining Found. (100 HT 0 - 1 |
| Landform (hillslope, terrace, etc.): | | ief (concave, convex, no | not MMA P | Slope (%): |
| Subregion (LRR or MLRA): MURA 147119 | Locarre | | ille) | |
| | - 4111 | Long: | | Datum: |
| Soil Map Unit Name: 53 A - Contor | July II | 1 - | NWI classification: _ | |
| Are climatic / hydrologic conditions on the site typic | | | | 1 2 |
| Are Vegetation, Soil, or Hydrology _ | significantly distu | bed? No Are "Norma | al Circumstances" present | ? Yes <u>~</u> No |
| Are Vegetation, Soil, or Hydrology _ | naturally problem | atic? No (If needed, | explain any answers in Re | emarks.) |
| SUMMARY OF FINDINGS - Attach site | e map showing san | npling point location | ons, transects, imp | ortant features, etc. |
| | | | ono, nanoooto, mp | ortant routaroo, oto. |
| Hydrophytic Vegetation Present? Yes Yes | No | is the Sampled Area | -1. 176 | A 3 3 3 |
| Hydric Soil Present? Yes | No | within a Wetland? | Yes No | |
| Wetland Hydrology Present? Yes Y | No | | | |
| Remarks: | | | | |
| typical of provide the second | | | | o d |
| n meeting a so aligner of the notation | | | | |
| mark of the first of the second | | | | |
| - March and d | | | 110 | |
| HYDROLOGY | | | | |
| Wetland Hydrology Indicators: | | | Secondary Indicators (m | inimum of two required) |
| Primary Indicators (minimum of one is required; cl | neck all that apply) | | Surface Soil Cracks | (B6) |
| Surface Water (A1) | True Aquatic Plants | (B14) | Sparsely Vegetated | Concave Surface (B8) |
| High Water Table (A2) | Hydrogen Sulfide Oc | lor (C1) | ✓ Drainage Patterns (| B10) |
| Saturation (A3) | Oxidized Rhizospher | es on Living Roots (C3) | Moss Trim Lines (B | 16) |
| Water Marks (B1) | Presence of Reduce | d Iron (C4) | Dry-Season Water 1 | Table (C2) |
| Sediment Deposits (B2) | Recent Iron Reduction | on in Tilled Soils (C6) | Crayfish Burrows (C | 8) |
| Drift Deposits (B3) | Thin Muck Surface (| C7) | Saturation Visible or | n Aerial Imagery (C9) |
| Algal Mat or Crust (B4) | Other (Explain in Re | marks) | Stunted or Stressed | Plants (D1) |
| Iron Deposits (B5) | | | Geomorphic Positio | n (D2) |
| Inundation Visible on Aerial Imagery (B7) | | 15.0 | Shallow Aquitard (D | 3) |
| Water-Stained Leaves (B9) | | | Microtopographic Re | |
| Aquatic Fauna (B13) | 1 - | | FAC-Neutral Test (I | 05) |
| Field Observations: | E4 P = 50 | | | |
| | Depth (inches): | 5 | | |
| Water Table Present? Yes 🔀 No | Depth (inches): | 0 | | ~ |
| | Depth (inches): | Wetland | Hydrology Present? You | es No |
| (includes capillary fringe) Describe Recorded Data (stream gauge, monitorion) | ng well, aerial photos, pro | evious inspections), if ava | ailable: | |
| , , , | | | | |
| Remarks: | No. i | | | = = = |
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VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WTV 84

| Steel millionid | Absolute | Dominant | | Dominance Test worksheet: |
|---|---|--------------------|-----------------|--|
| Tree Stratum (Plot size:) | | Species? | . | Number of Dominant Species |
| 1. Frating poyney wanta | 50 | 1 | FACW | That Are OBL, FACW, or FAC: (A) |
| 2. Acer Negulado! | 15 | <u> </u> | PAC | Total Number of Dominant |
| 3. 1 Unus ymercana | 25 | Y | FACW | Species Across All Strata: (B) |
| 4 | | • | | |
| 5 | | | | Percent of Dominant Species |
| 6. | | | | That Are OBL, FACW, or FAC: (A/B) |
| | | | 15.1 | Prevalence Index worksheet: |
| 7 | 12 | = 4 /4 | | Total % Cover of: Multiply by: |
| 8. | 70 | = Total Cov | | OBL species x 1 = |
| Sapling/Shrub Stratum (Plot size: | 70 | = Total Cov | | FACW species x 2 = |
| 1. Gerhalanthus, Occidentalis | 20 | Y | OBL | FAC species x 3 = |
| The warms of a compact | 50 | | FAC | |
| 2. Her negundo | o Some S. A. | | 110 | FACU species x 4 = |
| 3. | | - | | UPL species x 5 = |
| 4. | EALLWEI III | | | Column Totals: (A) (B) |
| 5 | 1, 2, 2,2 | | | B |
| 6 | | | | Prevalence Index = B/A = |
| 7 | | | | Hydrophytic Vegetation Indicators: |
| 8 | | | | |
| 9 | | | | ✓ 2 - Dominance Test is >50% |
| | | | = - | 3 - Prevalence Index is ≤3.0¹ |
| 10 | 35 | | | 4 - Morphological Adaptations¹ (Provide supporting |
| Herb Stratum (Plot size:) | | = Total Cov | /er | data in Remarks or on a separate sheet) |
| 1. Typha attolia | 2,5 | Y | OBL | Problematic Hydrophytic Vegetation¹ (Explain) |
| 2. Cana aminanaceh | 45 | 1/ | FACW | of the property of process than the company of the property of the process of the |
| 75 7 7 7 | 15 | | A | ¹ Indicators of hydric soil and wetland hydrology must |
| 3 Polynomum Sagithatum | 70 | Y | 001 | be present, unless disturbed or problematic. |
| 4 | Old III | 1 1552m 111 | general greater | Definitions of Four Vegetation Strata: |
| 5. On his sensy one skew. | EQN | Trail I | yA i A cago | |
| 6 | Elly Jeal- | No. of Contract of | E col | Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or |
| 732(V) = 12(L) - 1 | | | his one | more in diameter at breast height (DBH), regardless of height. |
| 8. PSYLES of consensus and an action of the | 1 | res din | rub?** | iki iki ingatha iki iki ki |
| 8. ************************************ | | | | Sapling/Shrub - Woody plants, excluding vines, less |
| | | | | than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| 10 | | | | Herb All herbaceous (non-woody) plants, regardless |
| 11. | | | | of size, and woody plants less than 3.28 ft tall. |
| 12 | 110 | | | Woody vine – All woody vines greater than 3.28 ft in |
| Woody Vine Stratum (Plot size:) | 110 | = Total Cov | /er | height. |
| | | | | 1 / |
| 1. Jan Thomas Communication Lander | | $\overline{}$ | -11-11-11-11 | and the state of t |
| 2. | | | | to if you can entitle to |
| 3 | in Theory and | William 2 | THE THE | register and a contrast of their as beautiful. |
| 4 | | | | Literature handle |
| 5 | | | | Hydrophytic Vegetation |
| 6 | | 11 | | Present? Yes No No |
| | | = Total Cov | /er | • |
| Remarks: (Include photo numbers here or on a separate s | sheet) | | | |
| Training (madde priore named a nore of on a separate t | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | | 2 |
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| (| th needed to document the indicator or confirm | if the absence of indicators.) |
|--|--|--|
| Depth Matrix | Redox Features | 176 |
| (inches) Color (moist) % | Color (moist) % Type¹ Loc² | Texture Remarks |
| 0-6 10tk912 90 | 7,57 Ry 6 10 C M | 314 |
| 10-12 WYR5/2 75 | 7.54RUIL 25 CM | 574 |
| 12- 107RS 1 60 | 7.54R46 40 C M | 5101 |
| | | |
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| 1.6 | | |
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| | | |
| ¹ Type: C=Concentration, D=Depletion, RM= | Reduced Matrix, MS=Masked Sand Grains. | ² Location: PL=Pore Lining, M=Matrix. |
| Hydric Soil indicators: | | Indicators for Problematic Hydric Soils ³ : |
| Histosol (A1) | Dark Surface (S7) | 2 cm Muck (A10) (MLRA 147) |
| Histic Epipedon (A2) | Polyvalue Below Surface (S8) (MLRA 147 | · |
| Black Histic (A3) | Thin Dark Surface (S9) (MLRA 147, 148) | (MLRA 147, 148) |
| Hydrogen Sulfide (A4)Stratified Layers (A5) | Loamy Gleyed Matrix (F2) | Piedmont Floodplain Soils (F19) |
| 2 cm Muck (A10) (LRR N) | Depleted Matrix (F3) Redox Dark Surface (F6) | (MLRA 136, 147) |
| Depleted Below Dark Surface (A11) | Depleted Dark Surface (F7) | Red Parent Material (TF2) Very Shallow Dark Surface (TF12) |
| Thick Dark Surface (A12) | Redox Depressions (F8) | Other (Explain in Remarks) |
| Sandy Mucky Mineral (S1) (LRR N, | Iron-Manganese Masses (F12) (LRR N, | |
| MLRA 147, 148) | MLRA 136) | |
| Sandy Gleyed Matrix (S4) | Umbric Surface (F13) (MLRA 136, 122) | ³ Indicators of hydrophytic vegetation and |
| Sandy Redox (S5) | Piedmont Floodplain Soils (F19) (MLRA 14 | 48) wetland hydrology must be present, |
| Stripped Matrix (S6) | | unless disturbed or problematic. |
| | | |
| Restrictive Layer (if observed): | | |
| Type: | | L |
| | | Hydric Soil Present? Yes No |
| Type: | | Hydric Soli Present? Yes No |
| Type: | | Hydric Soil Present? Yes No |
| Type: | | Hydric Soil Present? Yes No |
| Type: | | Hydric Soil Present? Yes No No |
| Type: | | Hydric Soil Present? Yes No |
| Type: | | Hydric Soli Present? Yes No |
| Type: | | Hydric Soil Present? Yes No |
| Type: | | Hydric Soil Present? Yes No No |
| Type: | | Hydric Soil Present? Yes No No |
| Type: | | Hydric Soli Present? Yes No No |
| Type: | | Hydric Soli Present? Yes No No |
| Type: | | |
| Type: | | Hydric Soil Present? Yes No No |
| Type: | | |

| Date: 7-9-62 Project Site: Purple Line WUS#: 68-9 |
|--|
| Observer(s) SW & BG |
| Stream Flow: Perennial: Intermittent Ephemeral |
| Gradient: 1% Classification: RYSBY |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: |
| Channel Ha's (check all that apply): Bed and Banks OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation thre presence of wrack line sediment sorting sediment sorting sediment sorting sediment deposition destruction of terrestrial vegetation thre presence of wrack line sediment sorting sediment sorting sediment deposition destruction of terrestrial vegetation thre presence of wrack line sediment sorting sediment sorting sediment deposition destruction of terrestrial vegetation thre presence of wrack line sediment sorting sediment deposition destruction of terrestrial vegetation thre presence of wrack line sediment sorting sediment sorting sediment deposition destruction of terrestrial vegetation thre presence of wrack line sediment sorting sedim |
| |
| Habitat and Pollutants: Substrate (predominant type (s)): |
| Habitat Complexity (characterize): |
| Bank Erosion: Severe Moderate Minor |
| Describe: undercut banks |
| Silt Deposition: Neavy |
| Pollutants (observation / potential sources): |
| • 10 |
| Stormwater Outfalls: |

| | pitat For (check all that apply): Federally Listed species | teads trail | Spawn Areas | <u> </u> |
|------------------------------|--|--------------|--|-------------|
| Other Environme | ntally-Sensitive Species | | dlife Diversity | |
| Explain F | Findings: | | | |
| | * 156 | an 3 N. 1.5 | Different of | Many of St |
| Riparian Zone Deve | lopment: vail line/ | commercial | | U DI. |
| Riparian veg | getation: Forest | Shrubs | Herbs | T CALA |
| Dominant S | Species: boxelder, Ja | panese knot | weed | 0.500 |
| | , | 1 | is hadî lis kirade) | and far not |
| Riparian Buff | er Width: ~ 70 ft | | sined frieds | See Tall |
| | % Shading by Woody Species: | 95% | Most | 40, 📆 |
| Notes: | The service of worlds in | - 1 P | voj se tysyret. | |
| | nillion 1 | Bresid W | x gr oup ye | -1 |
| | The straint source received and the confirmation of the straint of | aircelt tinn | water deposition water characters of the contract of the contr | |
| | | | | m To |
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| | | | d ∴ nihiV/ iei | |
| | Securior Descripe | | | |
| | | Enn o | ratristorio Largo inspirmiba | |
| | 2 | | | |
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Slizo Creek

| Date: 11-30-11 Project Site: Purple Live wus #: 003 |
|---|
| Observer(s) Bb, HS |
| Stream Flow: Perennial: Intermittent Ephemeral |
| Gradient: 2 1°10 Classification: RQVB |
| Channel Characteristics: Natural X Artificial (man-made) Manipulated (man-altered) Explain: Channeli Fed Hurry Cul VIII |
| |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line shelving sediment sorting sediment sorting scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list): Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width |
| Habitat and Pollutants: Substrate (predominant type (s)): |
| Habitat Complexity (characterize): VIFHO VUN COMPLEXES, leaf |
| packets-moderate |
| Bank Erosion: Severe Moderate Minor |
| Describe: |
| Silt Deposition: |
| Pollutants (observation / potential sources): Youd run Off |
| Stormwater Outfalls: NOME |

| | Biological Habitat For (check all that apply): Federally Listed species Other Environmentally-Sensitive Species | | Fish Spawn Areas Aquatic/Wildlife Diversity | | |
|--|--|-------------------|--|-------------------------|--|
| | | | | | |
| | Explain Findings: _ | | | 1 2 11 | |
| | Riparian Zone: Development: | Playgurund | Loadwa | u | |
| | Riparian vegetation: | Forest | Shrubs | Herbs | |
| | Dominant Species: | Black lowest | Chem | , red malle, | |
| | willow | Dale | | - = V 44 | |
| | Riparian Buffer Width: | 10' | mult' | and termina bragolitica | |
| | Approximate % Shading | by Woody Species: | 50% | | |
| | Notes: | | | - 40 | |
| | | the service | | | |
| | | - Su J | 1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 | | |

| Date: 11-30-11 Project Site: Purple Live wus #: 005 |
|---|
| Observer(s) B6 H5 |
| Stream Flow: Perennial: Intermittent Ephemeral |
| Gradient: L1% Classification: R2VB1 2 |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank changes in character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition water staining the presence of wack line sediment sorting scour multiple observed or predicted flow events abrupt change in plant community other (list): Discontinuous OHWM (explain): |
| |
| Morphology: Avg. Channel Width D Depth 3' Avg. Water Depth 4" |
| Has stream morphometry been altered? Describe : |
| Channelized |
| Habitat and Pollutants: Substrate (predominant type (s)): Cobble Sprace Sund |
| Habitat Complexity (characterize): Moderate viffle Min |
| sequence woody dobnis, noots |
| Bank Erosion: |
| Describe: Fin areas of Scent |
| Silt Deposition: |
| Pollutants (observation / potential sources): WSh 90 Of trash M |
| Stream |
| Stormwater Outfalls: |

| Biological Habitat For (check all that apply): Federally Listed species | Fish Spawn Areas |
|--|--|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | a jajan ja f |
| | See Park |
| Riparian Zone: Development: A putul (Riparian vegetation: Forest X | Impleyes |
| Riparian vegetation: Forest X | Shrubs Herbs |
| Dominant Species: red made | tulip poplar, bush |
| honeysuckle | non-ret to the return of the r |
| Riparian Buffer Width: 20 - 50' | page of list resides showing |
| Approximate % Shading by Woody Species: | 85% |
| Notes: | The same of the sa |
| S PERSON NAME OF | a Kara |
| | Cook along and the |

Section of a continuous formation of the continuous format

NW branch

| Date: 12-9-11 Project Site: Purple Line WUS #: 006 |
|--|
| Observer(s) BG, ItS |
| Stream Flow: Perennial: Lilo Intermittent Ephemeral Gradient: Lilo Classification: R2V62 |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) × Explain: |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line shelving sediment sorting sediment sorting scour multiple observed or predicted flow events sediment deposition abrupt change in plant community other (list): Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width |
| Habitat and Pollutants: Substrate (predominant type (s)): |
| Habitat Complexity (characterize): 100 to moderate - few deep proposed no clean riffles Bank Erosion: Severe Moderate Minor_X |
| Describe: Unvegetated areas Silt Deposition: Neary near Culvert |
| Pollutants (observation / potential sources): Voud VUNOFF |
| Stormwater Outfalls: WWW |

| Biological Habitat For (check all that apply): Federally Listed species | was to Mail Fish Spawn Areas |
|---|--|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | |
| | it an Fig. |
| Riparian Zone: Development: Fields m | soun sides, narrow buff |
| Riparian vegetation: Forest | Shrubs Herbs |
| Dominant Species: My 144 ora | vose, foxtuil, black will |
| Sycamore | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| Riparian Buffer Width: | Shannel Has (oheck all Ent. pp.19) |
| Approximate % Shading by Woody Species: | 40% |
| Notes: | en a di la termandant la mantala Fardi T |
| Notes. | Greature . |
| on actions of the second | years to the second of the sec |
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| | Hitmat Complexity Ichanacterize) |
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trib to NW Branch

| Date: 12-9-11 Project Site: RVDU WUS#: 007 |
|--|
| Observer(s) Bb, HS |
| Stream Flow: Perennial: X Intermittent Ephemeral |
| Gradient: 41% Classification: R2VB2 |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) X Explain: Channelized its entire langth due to culte |
| |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line sediment sorting sediment sorting scour multiple observed or predicted flow events sediment deposition abrupt change in plant community other (list): Discontinuous OHWM (explain): |
| Morphology: |
| Avg. Channel Width Depth Avg. Water Depth Has stream morphometry been altered? Describe : |
| Habitat and Pollutants: Substrate (predominant type (s)): Habitat Complexity (characterize): Color Color |
| no clean riffles |
| Bank Erosion: Severe Moderate Minor |
| Describe: 2008/07/ COMMUNICA VICTOR VICTOR |
| Silt Deposition: |
| Pollutants (observation / potential sources): |
| Stormwater Outfalls: |

| | Figh Snown Arong |
|---|--|
| Federally Listed species | Fish Spawn Areas |
| ther Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | Management's Committee of the Committee |
| | wo: mag R |
| iparian Zone: Development: BML - drche | en Convse; OBour - MD |
| Riparian vegetation: Forest | Shrubs Herbs |
| Dominant Species: 1/0000000, - | tulis poplar, ned maple |
| Dox elder noison | nivy Tarouse home |
| Riparian Buffer Width: | sharp or Man schook all that end you |
| - | 95% |
| Approximate % Shading by Woody Species: | 1970 |
| Notes: | Marie V Charles SEPV - v about the con- |
| Int - months - | < II.A |
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| | No. of Control Paper |
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| | Included the formation of the formation |
| | Income and Foundation The control of the analysis of the anal |

Stream Features (Victor half as Australia at 15 and 16 algorials)

| Date: 7-9-11 Project Site: Purple the wus #: 00 8 |
|---|
| Observer(s) B6, 1145 |
| Stream Flow: Perennial: Intermittent Ephemeral Gradient: Classification: |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) \ Explain: Channeli Zed |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line shelving sediment sorting sediment sorting scour multiple observed or predicted flow events abrupt change in plant community water staining other (list): Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width 3.5 Depth 3 Avg. Water Depth 21 |
| Has stream morphometry been altered? <u>YPS</u> Describe: |
| Habitat and Pollutants: Substrate (predominant type (s)): Habitat Complexity (characterize): W due to shallow flows |
| Bank Erosion: Severe Moderate Minor Describe: Vealue |
| Silt Deposition: Moderate Pollutants (observation / potential sources): Luch - roud runoff |
| Stormwater Outfalls: IMM |

| Federally Listed species | Fish Spawn Areas | |
|--|--|--------|
| ther Environmentally-Sensitive Species | Aquatic/Wildlife Diversity | |
| Explain Findings: | observices AC IES | |
| | Stream Flow: | |
| iparian Zone: Development: Down - MD | 193, (R) Bank-Crithet | Course |
| Riparian vegetation: Forest | Shrubs Herbs Herbs | |
| Dominant Species: Sheln ash | , princess tree | |
| | E solution 3 | |
| Riparian Buffer Width: | Channel, Cha | |
| Approximate % Shading by Woody Species: | 0%0 | |
| Notes: | nue que el egimento es «-i[] | |
| Proceedings 1 | 100 | |
| and had the same of the same o | | |
| | | |
| | the part Alexandra or community | |

Stream Features ((viqqa tedi ilis xcada)) met rational incipotent

| Date: 12-9-11 Project Site: Purple Line wus #:00 |
|--|
| Observer(s) Bt HS |
| Stream Flow: Perennial: Intermittent Ephemeral Gradient: 100 Classification: RUSBBU |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: Channelized and rip rap at top |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line shelving sediment sorting sediment sorting scour multiple observed or predicted flow events sediment deposition abrupt change in plant community other (list): Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width Depth Depth Avg. Water Depth |
| Has stream morphometry been altered? Describe : |
| Habitat and Pollutants: Substrate (predominant type (s)): Habitat Complexity (characterize): |
| Bank Erosion: Severe Moderate Minor |
| Describe: |
| Silt Deposition: |
| Pollutants (observation / potential sources): PM effuent |
| Stormwater Outfalls: IMON |

| Biological Habitat For (check all that appropriate Federally Listed species | oly): see 48 55 Fish Spawn Areas |
|--|--|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | |
| | L. 3 macri |
| Riparian Zone: Development: | + course (2) tributary |
| Riparian vegetation: Forest | Shrubs Herbs |
| Dominant Species: Black | walnut, sycumne |
| | EL VILVE STORT TO AND |
| Riparian Buffer Width:35 | Dunmak Haw (charakt all that emply): |
| Approximate % Shading by Woody Specie | es: 95% |
| Notes: | Self and in the control of the contr |
| Pan, dis Impulgas | |
| Visite of administration of the state of the | |
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| | abilint and Pollutants: |
| 1 | Habitat Complexity (characterized |
| | |
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| | |
| | Parties the last stion / potential sources. |
| | |

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

| Project/Site: Purple Line | 011/0 · M// | vaterna and | nling Date: 11-30 - 1 |
|--|------------------------------------|--------------------------------------|--------------------------|
| | City/County: 1 4 | Sam | pinig Date. |
| Applicant/Owner: MTA | | | impling Point: WTP10- |
| Investigator(s): 15. Darrar H. Deartas. | Section, Township | | 2 |
| Landform (hillslope, terrace, etc.): excavated de | MS516M Local relief (concave, | convex, none): Concave | Slope (%). 170 |
| Subregion (LRR or MLRA): MLRA 146 Lat: | | Long: | Datum: |
| Soil Map Unit Name: UYDUN Lund - RUSSEAF - | | | DEMIELIE |
| | [a] [a] | • | |
| Are climatic / hydrologic conditions on the site typical for | | No (If no, explain in Remark | |
| Are Vegetation, Soil, or Hydrology | _ significantly disturbed? | Are "Normal Circumstances" presen | t? Yes 🔀 No |
| Are Vegetation, Soil, or Hydrology | _ naturally problematic? | (If needed, explain any answers in F | Remarks.) |
| SUMMARY OF FINDINGS - Attach site ma | ap showing sampling poi | nt locations, transects, imp | portant features, etc. |
| V | W | | |
| Hydrophytic Vegetation Present? Yes | No Is the Sam | pled Area | |
| Hydric Soil Present? Wetland Hydrology Present? | No within a W | etland? Yes X | lo |
| Wetland Hydrology Present? Yes | - No | | |
| Remarks: | | | |
| Harrison Line and add militally | | | |
| The second secon | | | |
| The state of the s | | | |
| The state of the s | | | |
| HYDROLOGY | | | |
| Wetland Hydrology Indicators: | | Secondary Indicators (r | minimum of two required) |
| Primary Indicators (minimum of one is required; check | all that apply) | Surface Soil Crack | s (B6) |
| Surface Water (A1) | True Aquatic Plants (B14) | Sparsely Vegetate | d Concave Surface (B8) |
| and the control of th | Hydrogen Sulfide Odor (C1) | Drainage Patterns | · |
| and the second s | Oxidized Rhizospheres on Living | | |
| | Presence of Reduced Iron (C4) | Dry-Season Water | |
| Sediment Deposits (B2) | Recent Iron Reduction in Tilled So | | |
| Drift Deposits (B3) | Thin Muck Surface (C7) | Saturation Visible of | on Aerial Imagery (C9) |
| Algal Mat or Crust (B4) | Other (Explain in Remarks) | Stunted or Stresse | d Plants (D1) |
| Iron Deposits (B5) | | Geomorphic Positi | on (D2) |
| Inundation Visible on Aerial Imagery (B7) | | Shallow Aquitard (| D3) |
| Water-Stained Leaves (B9) | | Microtopographic F | |
| Aquatic Fauna (B13) | | FAC-Neutral Test (| (D5) |
| Field Observations: | 10" | - 11 1 1 | |
| Surface Water Present? Yes No | Depth (inches): 18 | | |
| Water Table Present? Yes No | Depth (inches): | | V |
| | Depth (inches): | Wetland Hydrology Present? | /es/ No |
| (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring we | ell aerial photos, previous insper | tions) if available: | |
| | sil action priotoc, providuo mapos | nono, n available. | |
| Remarks: | V 1 | | |
| | | | |
| Created westland | - 31 temperature | | |
| 0 - 510 (50) | | | |
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| | | | |
| | | | |
| 27 | | | |
| 29 | | | |
| a ta | | | |
| | 9.0 | | |

VEGETATION (Four Strata) – Use scientific names of plants.

WRIO

| Tree Stratum (Plot size: | de control |
|--|--|
| Tree Stratum (Plot size:) | _ (A) |
| 2 Total Number of Dominant 3 Species Across All Strata: | (B) |
| 4 Percent of Deminent Species 4. | es Arron |
| Felcent of Dollman Species 1999 | (A/B) |
| 6. | 341 3 |
| 7. Prevalence Index worksheet: | 110.000111 |
| 8. Total % Cover of: Multiply by: | |
| = Total Cover OBL species x1 = | |
| Sapling/Shrub Stratum (Plot size:) FACW species x 2 = 1 FAC species x 3 = | 156 on 17 |
| | _ |
| 2 FACU species x 4 = | The state of the s |
| 3. UPL species x 5 = | |
| 4 | — (B) |
| 5 Prevalence Index = B/A = | |
| Hydrophytic Vegetation Indicators | |
| 1 - Ranid Test for Hydrophytic Venetation | |
| 8 | |
| 9 | |
| 4 - Morphological Adaptations ¹ (Provide su | pporting |
| Herb Stratum (Plot size:) | |
| Problematic Hydrophytic Vegetation (Expl | ain) |
| 2. and a second | E WEIGHT S. |
| Indicators of hydric soil and wetland hydrology | must |
| A THE CO. CAN DESCRIPTION OF THE CO. CAN DESCRIPTION OF THE CO. | 16.7 |
| 5 Definitions of Four Vegetation Strata: | 0,00 |
| Tree – Woody plants, excluding vines, 3 in. (7.6 | |
| | dless of |
| The state of the s | 100 |
| 8 Sapling/Shrub – Woody plants, excluding vine | |
| 9 than 3 in. DBH and greater than 3.28 ft (1 m) ta | !!!. |
| 10 Herb – All herbaceous (non-woody) plants, reg | ardless |
| of size, and woody plants less than 3.28 ft tall. | tin 4 |
| Woody vine – All woody vines greater than 3.2 | 8 ft in |
| Woody Vine Stratum (Plot size:) | 7.3 |
| 1. | 417 |
| 2 | dinate |
| | 100 |
| 4. | |
| 5. Hydrophytic Vegetation | |
| 6. Present? Yes No | |
| = Total Cover | |
| Remarks: (Include photo numbers here or on a separate sheet.) | |
| (| |
| | l |
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| | i |

Sampling Point: WTP 10-

| | | | th needed to docur | nent the ir | idicator (| or commi | n tne absenc | e oi illuicate | ,, s., | |
|--------------------|-----------------------|-----------------|-----------------------|-------------|-------------------|-------------------|----------------|----------------|--------------------------------|---------------------------|
| Depth | Matrix | | Redo | x Features | | | | | | |
| (inches) | Color (moist) | % | Color (moist) | % | Type ¹ | _Loc ² | <u>Texture</u> | | Remarks | |
| 0-3 | 543/1 | 100 | • | | | | 5.4 | Muc | | 10 45 |
| 3-10 | 54611 | 85 | 10YR516 | 15 | | \overline{M} | SIC | | | |
| 101 | 6.411 | 50 | 10 1/4 -1: | <u> </u> | $\overline{}$ | <u>~///</u> | | | | |
| 105 | 2 4011 | - 30 | 104R.SI6 | 30 | | | 912 | | | |
| | K | | a <u>u</u> | | | | | | | |
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| | | | · . | | | | | | | |
| | | | | | | | | | | *** |
| 1Type: C=C | oncentration, D=Dep | letion PM- | -Deduced Matrix M | S-Mackad | Sand Cre | inc | 2l contion: [| OlDoro Linin | ng, M=Matrix. | |
| Hydric Soil | | JIEUOII, INIVI- | -Reduced Matrix, IVI- | 5-iviaskeu | Sanu Gra | 11115. | | | ıg, ⋈=⋈aנrıx. oblematic Hyd | Irio Collo ³ . |
| - | | | D 10 1 | (07) | | | | | | |
| Histosol | | | Dark Surface | | (0.0) | | | | A10) (MLRA 14 | -7) |
| | pipedon (A2) | | Polyvalue Be | | | | , 148) | | Redox (A16) | |
| ı | istic (A3) | | Thin Dark Su | | | 47, 148) | | (MLRA 14 | | =40) |
| | en Sulfide (A4) | | Loamy Gleye | | -2) | | _ | | oodplain Soils (| -19) |
| | d Layers (A5) | | X Depleted Ma | ` ' | | | | (MLRA 13 | | |
| | uck (A10) (LRR N) | (4.4.4) | Redox Dark | | • | | | | Material (TF2) | |
| | d Below Dark Surfac | e (A11) | Depleted Da | | | | | - | Dark Surface | (TF12) |
| | ark Surface (A12) | | Redox Depre | • | • | | _ | Other (Expla | in in Remarks) | |
| | Mucky Mineral (S1) (I | LRR N, | Iron-Mangan | | s (F12) (I | _RR N, | | | | |
| | A 147, 148) | | MLRA 13 | | | | 3. | | | |
| | Gleyed Matrix (S4) | | Umbric Surfa | | | | | | ydrophytic vege | |
| | Redox (S5) | | Piedmont Flo | oodplain Sc | ils (F19) | (MLRA 14 | | | ology must be | |
| | Matrix (S6) | | | | | | | unless distur | bed or problem | atic. |
| | | | | | | | | | | |
| | Layer (if observed) | : | | | | | | | | |
| Type: | Layer (If observed) | : | | | | | | | V | |
| Type: | ches): | | <u> </u> | | | | Hydric So | il Present? | Yes X | No |
| Type: Depth (in | | | | | | | Hydric So | il Present? | Yes X | No |
| Type: | | | _ | | | | Hydric So | il Present? | Yes <u>X</u> | No |
| Type: Depth (in | | | | | | | Hydric So | il Present? | Yes <u>X</u> | No |
| Type: Depth (in | | | <u> </u> | | | | Hydric So | il Present? | Yes <u>X</u> | No |
| Type: Depth (in | | | | | | | Hydric Sc | il Present? | Yes <u>X</u> | No |
| Type: Depth (in | | | | | | | Hydric So | il Present? | Yes <u>X</u> | No |
| Type: Depth (in | ches): | | | | | | Hydric So | il Present? | Yes <u>X</u> | No |
| Type: Depth (in | ches): | | | | | | Hydric So | il Present? | Yes <u>X</u> | No |
| Type: Depth (in | ches): | | | | | | Hydric So | il Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | | Hydric So | il Present? | Yes <u>X</u> | No |
| Type: Depth (in | ches): | | | | | | Hydric So | il Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | | Hydric So | il Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | | Hydric So | il Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | | | il Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | 20 | | il Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | 21 | | il Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | 21 | | il Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | | | il Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | | | il Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | | | il Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | | | il Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | | | il Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | | | oil Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | | | oil Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | 21 | | oil Present? | Yes X | No |
| Type: Depth (in | ches): | | | | | 21 | | oil Present? | Yes X | No |

| Date: 12-9-11 Project Site: WYPU Line, WUS #: 01 |
|---|
| Observer(s) Bb, HS |
| Stream Flow: Perennial: Intermittent Ephemeral |
| Gradient: 4 Classification: RUSB 3 14 |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: portons of the Streem have been due in |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line shelving sediment sorting sediment deposition abrupt change in plant community other (list): |
| Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width Depth Avg. Water Depth 4 |
| Has stream morphometry been altered? |
| Habitat and Pollutants: Substrate (predominant type (s)): Habitat Complexity (characterize): Yey w due to lack of Structure |
| Bank Erosion: Severe Moderate Minor |
| Describe: |
| Silt Deposition: |
| Pollutants (observation / potential sources): Roud vunoff |
| Stormwater Outfalls: |

| Biological Habitat For (Federally L | check all that apply): Listed species | Fish S | pawn Areas |
|--|---------------------------------------|---|----------------------|
| Other Environmentally-Sen | sitive Species | Aquatic/Wild | life Diversity |
| Explain Findings: | · | | 3 mil C iii |
| <u>-</u> | 777 | n I neil | Flam |
| Riparian Zone: Development: | maintained ! | awn /parki | ne lot |
| Riparian vegetation: | Forest + | Shrubs | Herbs |
| Dominant Species: | Sweet gun | n jelmi, | green brie |
| Riparian Buffer Width: | 5'm both | sides | number of the second |
| Approximate % Shading | | 35% | est gas at the |
| Notes: | | * = = = = = = = = = = = = = = = = = = = | N MI HE |
| | 10-01 | | |
| | and the second second | | |

Stream Features
Field Sheet

Stream Features
Field Sheet

| Date: 12-9-11 Project Site: Purple Line wus #: D12 |
|--|
| Observer(s) BC, HS, AT |
| Stream Flow: Perennial: Intermittent Ephemeral R JUB 1/2 (P P P) Gradient: 1-5% Classification: |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) X Explain: Channel Has (check all that apply): |
| Bed and Banks OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line shelving sediment sorting sediment sorting scour multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list): Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width 10' Depth 2.5' Avg. Water Depth 2" Has stream morphometry been altered? 415 Describe: Rip-rap Aug. Water Depth 2" |
| Habitat and Pollutants: Substrate (predominant type (s)): grave Sand rip-rap Habitat Complexity (characterize): Moderate, deep pools, few under cut banks - manners observed Bank Erosion: Severe Moderate Minor |
| Describe: viprop Stabilization evident Noderate A |
| Pollutants (observation / potential sources): |

| Biological Habitat For (check all that apply): Federally Listed species | ### Fish Spawn Areas |
|--|--|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | |
| Riparian Zone: Development: Development: Forest Dominant Species: Maple Solve | Shrubs Herbs Herbs Then ash Dox elder, Swamp Smartweed |
| Riparian Buffer Width: | Che multissa (elercical) that martyps |
| Approximate % Shading by Woody Species: | 95% |
| Notes: | and the Committee of the control of |
| | The state of the s |

| Date: 7-16-12 Project Site: Purple Line wus#: 015 |
|---|
| Observer(s) BA, AT |
| Stream Flow: Perennial: Intermittent Ephemeral |
| Gradient: L1% Classification: R20 Bx |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) × |
| Explain: Channelized w/rp-rup |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line sediment sorting sediment sorting secure vegetation matted down, bent, or absent scour multiple observed or predicted flow events sediment deposition abrupt change in plant community other (list): |
| Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width Depth Avg. Water Depth |
| Has stream morphometry been altered? |
| lined channel |
| Habitat and Pollutants: Substrate (predominant type (s)): |
| Habitat Complexity (characterize): |
| Bank Erosion: Severe Moderate Minor |
| Describe: |
| Silt Deposition: MINOV |
| Pollutants (observation / potential sources): |
| |
| Stormwater Outfalls: |

| Biological Habitat For (check all that apply): Federally Listed species | Fish Spawn Areas |
|--|---|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | |
| Riparian Zone: Development: MS + Which d | ue to roadway maintanance |
| Riparian vegetation: Forest | Shrubs Herbs K |
| Dominant Species: pmcs tru, | Norway maple, rubus sp. |
| Riparian Buffer Width: 35 | availiga francisca a sering man formación |
| Approximate % Shading by Woody Species: | 95% |
| Notes: | |
| | |
| | |

| Date: 12/9/4 Project Site: fruple fre wus #: 016 |
|---|
| Observer(s) 85, HS |
| Stream Flow: Perennial: Intermittent Ephemeral |
| Gradient: L1% Classification: R45B1 2 |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) \(\sum_{==}^{\infty} \) Explain: Channel \(\text{Tell} \) |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line shelving sediment sorting sediment sorting scour multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list): Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width 5 Depth Avg. Water Depth Has stream morphometry been altered? Wannelized Mannelized |
| Habitat and Pollutants: Substrate (predominant type (s)): Habitat Complexity (characterize): You due to Shallow flow S |
| Bank Erosion: Severe Moderate Minor X Describe: |
| Silt Deposition: Moderate |
| Pollutants (observation / potential sources): |
| Stormwater Outfalls: \(\)\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ |

| Biological Habitat For (check all that apply): Federally Listed species | Fish Spawn Areas |
|--|--|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | The state of the s |
| | 3.75 |
| Riparian Zone: Development: | and the second s |
| Riparian vegetation: Forest Dominant Species: | Shrubs & Herbs |
| Riparian Buffer Width: | of the control of the second and the con- |
| Approximate % Shading by Woody Species: | 80% |
| Notes: | |
| y = 100 y | SP-963 |
| delitari di racifi di di | |

| Date: 12-9-11 Project Site: turple live WUS #: 18 |
|---|
| Observer(s) B6 HS |
| Stream Flow: Perennial: Intermittent Ephemeral |
| Gradient: 1% Classification: R'ABI/2 |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) Explain: Artificial (man-made) |
| Channel Has (check all that apply): Bed and Banks |
| □ OHWM □ clear, natural line impressed on the bank □ destruction of terrestrial vegetation □ changes in character of soil □ the presence of wrack line □ shelving □ sediment sorting □ vegetation matted down, bent, or absent □ scour □ leaf litter disturbed or washed away □ multiple observed or predicted flow events □ sediment deposition □ abrupt change in plant community □ water staining □ other (list): □ the presence of litter and debris |
| Morphology: Avg. Channel Width 55 Depth 7 Avg. Water Depth 124 |
| Has stream morphometry been altered? <u>UPS</u> Describe: |
| Habitat and Pollutants: Substrate (predominant type (s)): Habitat Complexity (characterize): Multinate - Mfle pool Sequence |
| Bank Erosion: Severe Moderate Minor |
| Describe: |
| Silt Deposition: What Pollutants (observation / potential sources): VOUD WARDER |
| Stormwater Outfalls: |

| Biological Habitat For (check all that apply): Federally Listed species | Fish Spawn Areas |
|--|--|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | <u> </u> |
| 441 | Stephen 770au |
| Riparian Zone: Development: Development: | 1, @ Baule- over grown field |
| Riparian vegetation: Forest | Shrubs Herbs |
| Dominant Species: POTSON IVY, | sycamore red maple, |
| Riparian Buffer Width: | When it has to some this equipe |
| Approximate % Shading by Woody Species: | ⁰ / ₀ |
| Notes: | garden in the properties the Table |
| | The state of the s |
| OV | |

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region City/County: (6 6 Applicant/Owner: Sampling Point: 1 Investigator(s): 10. 126/10 Section, Township, Range: Landform (hillslope, terrace, etc.): concave Local relief (concave, convex, none); Slope (%): Are climatic / hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.) _, Soil ___ ___, or Hydrology _ significantly disturbed? Are "Normal Circumstances" present? Yes Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? is the Sampled Area Hydrlc Soil Present? No within a Wetland? Wetland Hydrology Present? Remarks: **HYDROLOGY** Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) Surface Water (A1) __ Aquatic Fauna (B13) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Marl Deposits (B15) (LRR U) Drainage Patterns (B10) Saturation (A3) Hydrogen Sulfide Odor (C1) Moss Trim Lines (B16) Water Marks (B1) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2) Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) ___ Algal Mat or Crust (B4) Thin Muck Surface (C7) Geomorphic Position (D2) Iron Deposils (B5) Other (Explain in Remarks) Shallow Aquitard (D3) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Water-Stained Leaves (B9) Sphagnum moss (D8) (LRR T, U) Field Observations: No _____ Depth (inches): Surface Water Present? Water Table Present? No _____ Depth (inches): Saturation Present? ___ Depth (inches): Wetland Hydrology Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: emergent tringe around swm pond

| ree Stratum (Plot size:) | Absolute | Dominant Indicator Species? Status | |
|--|-------------|------------------------------------|--|
| The same of the Company | | | Number of Dominant Species That Are OBL, FACW, or FAC: (A) |
| | | | Total Number of Dominant |
| • | | | Species Across Ali Strata: (B) |
| - | | | Percent of Dominant Species That Are OBL FACW or FAC: 100 |
| | | | That Are OBL, FACW, or FAC: 100 (A/ |
| Supplemental Control of the Control | | 45 | Prevalence index worksheet: |
| A STATE OF THE STA | | | Total % Cover of: Multiply by: |
| ment - filt of in the | | Total Cover | OBL species x 1 = FACW species x 2 = |
| 50% of total cover: | 20% of | total cover: | FAC species x 3 = |
| apling/Shrub Stratum (Plot size:) | | | FACU species x 4 = |
| - | | | UPL species x 5 = |
| - | | - | Column Totals: (A) (E |
| | | | - Prevalence Index = B/A = |
| | | | Hydrophytic Vegetation Indicators: |
| | | | - 1- Rapid Test for Hydrophytic Vegetation |
| | | | 2 - Dominance Test is >50% |
| | | | 3 - Prevalence Index is ≤3.0¹ |
| 500/ -54-4-1 | | Total Cover | Problematic Hydrophytic Vegetation¹ (Explain) |
| 50% of total cover: erb Stratum (Plot size:) | 20% of | total cover: | The state of the s |
| Typha latitula | 98 | YOBL | Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| | 200 | FACU | Definitions of Four Vegetation Strata: |
| Lanicera 1000mica | 15 | FAC | encays to the state of the stat |
| CONTRACT NO STATE OF THE STATE | 100000 | | Tree – Woody plants, excluding vines, 3 in. (7.6 cm) more in diameter at breast height (DBH), regardless |
| (6,000 p. 10.135 pt.) | | THE THE LOWER TO | helght. |
| 20 All the 30 to odd with the | ngjunos n | ilu Konggrafika | _ Sapling/Shrub - Woody plants, excluding vines, les |
| | | or burner are | than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| | | | Herb - All herbaceous (non-woody) plants, regardles |
| A selection of | | | of size, and woody plants less than 3.28 ft tall. |
| 0 1 | | | Woody vine - All woody vines greater than 3.28 ft in height. |
| 2. | | | |
| | 133 | Total Cover | |
| 50% of total cover: $\underline{\mathcal{U}}$ | . /- | total cover: <u>Ho</u> | |
| oody Vine Stratum (Plot size:) | | | hard to the state of the state |
| NA ALE | 2 | | |
| | | | - 0 |
| | | | - |
| | | | - |
| | | Total Cover | ─ Hydrophytic Vegetation |
| 50% of total cover: | | total cover: | Present? Yes No No |
| emarks: (If observed, list morphological adaptations b | | | |
| | ,- | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Profile Description: (Describe to the depth needed to document the indicator or confirm | the absence of indicators.) |
|--|--|
| Depth Matrix Redox Features (inches) Color (moist) % Color (moist) % Type Loc 2 | Testino |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | Texture Remarks |
| | 211 |
| 37 Mil naterial | |
| | |
| | |
| | 2857 |
| | |
| | |
| ¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. | ² Location: PL=Pore Lining, M=Matrix. |
| Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) | indicators for Problematic Hydric Soils ³ : |
| Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U |) 1 cm Muck (A9) (LRR O) |
| Histic Epipedon (A2) — Thin Dark Surface (S9) (LRR S, T, U) — Black Histic (A3) — Loamy Mucky Mineral (F1) (LRR O) | 2 cm Muck (A10) (LRR S) |
| Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) | Reduced Vertic (F18) (outside MLRA 150A,B) Pledmont Floodplain Soils (F19) (LRR P, S, T) |
| Stratified Layers (A5) Depleted Matrix (F3) | Anomalous Bright Loamy Soils (F20) |
| Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) | (MLRA 153B) |
| 5 cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F7) Redox Depressions (F8) | Red Parent Material (TF2) |
| 1 cm Muck (A9) (LRR P, T) Redox Depressions (F6) | Very Shallow Dark Surface (TF12) Other (Explain in Remarks) |
| Depleted Below Dark Surface (A11) Depleted Ochric (F11) (MLRA 151) | one (Explain in Normality) |
| Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, | |
| Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) | wetland hydrology must be present, |
| Sandy Gleyed Matrix (S4) — Betta Octific (F17) (MERA 151) — Reduced Vertic (F18) (MERA 150A, 150B) | unless disturbed or problematic. |
| Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 14 | |
| Stripped Matrix (S6) Anomalous Bright Loamy Solls (F20) (MLR. | A 149A, 153C, 153D) |
| Dark Surface (S7) (LRR P, S, T, U) | |
| | |
| Restrictive Layer (if observed): | |
| Restrictive Layer (if observed): Type: | Hudric Soil Present? Voc. No. V |
| Restrictive Layer (if observed): | Hydric Soli Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soli Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): | Hydric Soli Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soli Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soli Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soli Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soli Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soli Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soli Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soli Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Hydric Soli Present? Yes No |

| Date: 5/24/13 Project Site: Purple Elucidate WUS#: 23 |
|--|
| Observer(s) 55 MD |
| Stream Flow: Perennial: Intermittent Ephemeral Gradient: Classification: PYSP2/4 |
| , |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line sediment sorting sediment sorting sediment sorting sediment sorting sediment down, bent, or absent scour multiple observed or predicted flow events sediment deposition abrupt change in plant community other (list): the presence of litter and debris Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width 5 Depth 6 Avg. Water Depth 3 |
| Has stream morphometry been altered? <u>yes</u> Describe: <u>Concrete culvest</u> |
| Habitat and Pollutants: Substrate (predominant type (s)): Sond, rip-rop Habitat Complexity (characterize): Sonc riples and pools |
| Bank Erosion: Severe Moderate Minor |
| Describe: <5% ofthere |
| Silt Deposition: yes, now box formation in chance! |
| Pollutants (observation / potential sources): beginning / magainst |
| el-trash |
| Stormwater Outfalls: yes, concrete ou (vest fed by SW) |

| Biological Habitat For (check all that apply): Federally Listed species | Fish Spawn Areas |
|--|----------------------------|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | |
| ······································ | |
| Development: he hear have | Shrubs Herbs |
| Riparian vegetation: Forest | Shrubs Herbs |
| Dominant Species: Solix ago | Earex lurida, bancera |
| Markii, Loncera | japonica Microstegium Ven |
| Riparian Buffer Width: Jourst ren | m: right-30', left-60' |
| Approximate % Shading by Woody Species: | |
| Notes: | |
| | |

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region Project/Site: Purple Line / Fiver doke Rd. City/County: Riverdale Sampling Date: 5/24/13 Applicant/Owner: MTA State: M > Sampling Point: W24-WTP Section, Township, Range: 176 Gaunty Investigator(s): 55 MD Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Subregion (LRR or MLRA): MLRA-149A Lat: Long: Datum:

Soil Map Unit Name: Christiana-Downer-Urban land complex NWI classification: PFO-14 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ____ (If no, explain in Remarks.) Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? NO _ Are "Normal Circumstances" present? Yes ____ No _ Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. **HYDROLOGY** Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) Surface Water (A1) ___ Aquatic Fauna (B13) ___ Sparsely Vegetated Concave Surface (B8) High Water Table (A2) ___ Marl Deposits (B15) (LRR U) ___ Drainage Patterns (B10) Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Moss Trim Lines (B16) ___ Water Marks (B1) ___ Oxidized Rhizospheres along Living Roots (C3) ___ Dry-Season Water Table (C2) __ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) Crayfish Burrows (C8) ____Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) ___ Saturation Visible on Aerial Imagery (C9) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Geomorphic Position (D2) ___ Iron Deposits (B5) Other (Explain in Remarks) Shallow Aquitard (D3) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Water-Stained Leaves (B9) ___ Sphagnum moss (D8) (LRR T, U) Field Observations: Surface Water Present? Water Table Present? Yes ____ No ____ Depth (inches): ____ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Photo # 6 Lacking at wetland

| VEGETATION (Four Strata) – Use scientific na | mes of plants. | | Sampling Point: WH-WT) |
|---|----------------------|------------|--|
| Tree Stratum (Plot size: 30 f /) | Absolute Dominant | Indicator | Dominance Test worksheet: |
| | % Cover Species | | Number of Dominant Species |
| 1. Salix Migra | 50 V | 90 | That Are OBL, FACW, or FAC: (A) |
| 2. Platanus accidentalis | 5 | FACW | Total Number of Dominant |
| 3. Fraxinus pensylvania | 40 / | FACIN | Species Across All Strata: (B) |
| 4. Cotolog sicioso | <u> </u> | FACU | |
| 5. Liquidandor Syrainflux | 5 | FAC | Percent of Dominant Species That Are OBL, FACW, or FAC: 1000 (A/B) |
| 6. Praulus daltardes | 8 | FAC | (AB) |
| 7 | | | Prevalence Index worksheet: |
| 8 | | W | Total % Cover of: Multiply by: |
| | 110 = Total Co | 10.5 | OBL species x 1 = |
| 50% of total cover:55 | | | FACW species x 2 = |
| Sapling/Shrub Stratum (Plot size: 35 P 7 | S 20% of total cover | | FAC species x 3 = |
| 1. Acer soulman | 15 V | C1. | FACU species x 4 = |
| | | FAC | |
| 2. Liquidandor Styric Dun 3. Ulgaris americana 4. Aces 1 29 11 20 | - 12 | +AC | UPL species x 5 = |
| 3. Ulang omorion | . | FAC | Column Totals: (A) (B) |
| | | FAC | Prevalence Index = B/A = |
| 5. Lonicary Mackii | | UPC | Hydrophytic Vegetation Indicators: |
| 6. Foxenus pensylvanica | | | |
| - · · / | | | 1 - Rapid Test for Hydrophytic Vegetation |
| 8. | | | 2 - Dominance Test is >50% |
| | 40 = Total Co | | 3 - Prevalence Index is ≤3.01 |
| 50% of total cover: 2 | | | Problematic Hydrophytic Vegetation (Explain) |
| Herb Stratum (Plot size: 30 P1 | 20 % Of total cover | | |
| , | 7- / | OP (| Indicators of hydric soil and wetland hydrology must |
| 1. Carex lunda | -30 | <u>08/</u> | be present, unless disturbed or problematic. |
| 2. Microsteen vininin | | EAC | Definitions of Four Vegetation Strata: |
| 3 Apacynia canabinum | . 15 | FACU | Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or |
| 4. Rundy cripus | | FAC | more in diameter at breast height (DBH), regardless of |
| 5. Fastuco gate 1315 | 1.5 | FACU | height. |
| 6 | | | Sapling/Shrub - Woody plants, excluding vines, less |
| 7 | | | than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| 8 | | | |
| 9. | | | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. |
| 10 | | | |
| 11 | | | Woody vine - All woody vines greater than 3.28 ft in |
| 12. | | | height. |
| | 48 | | |
| 500/ 551-1 | = Total Co | | |
| 50% of total cover: | 1 20% of total cover | 11.0 | |
| Woody Vine Stratum (Plot size: 30) | 9 ~ / | -1 | |
| 1. Tox codo radicans | 20/ | FA L | |
| 2 6011/050 10001-11 | . <u></u> | FAC | |
| 3. Atheras King quinquatolia | 20 / | FAC | |
| 4 | | | |
| 5 | | | Hydronbydla |
| | 45 = Total Co | ver | Hydrophytic Vegetation |
| 50% of total cover: 2 | | | Present? Yes No |
| Remarks: (If observed, list morphological adaptations belo | | • | |
| to ease, ist morphological adaptations belo | ντν <i>)</i> . | | |
| | | | |
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| . , | | th needed to docum | nent the I | ndicator | or confirn | n the absence | of Indicator | s.) | i |
|--|--------------------|-----------------------------|------------|-----------|-------------|------------------------|---------------------------|------------------|---------|
| Depth Color (| Matrix | | x Feature | | | | | | |
| (inches) Color (r | 0/: | Color (moist) | % | Type' | Loc² | Texture | | Remarks | |
| 9-12 2.5n | '0 4 | | | | | 36 | MUEKY | MINGTO | -1/ayen |
| 1 | 1 100 | | | | | <u>SL</u> | | | |
| 10-15"+ N 5/ | 0 95 | 10 YR 4/6 | 5 | C | M | 56 | | | 0.00 |
| | 100 | - | | | | | | | |
| | 3431 | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| ¹ Type: C=Concentration | , D=Depletion, RM= | Reduced Matrix, MS | S=Masked | i Sand Gr | alns. | ² Location: | PL=Pore Lir | ning, M=Matrix | |
| Hydric Soil Indicators: | (Applicable to all | LRRs, unless other | wise not | ed.) | | Indicators | for Problen | natic Hydric S | oils³: |
| Histosol (A1) | | Polyvalue Be | | | | U) 1 cm i | Muck (A9) (L | RR O) | |
| Histic Epipedon (A2 |) | Thin Dark Su | | | | | Muck (A10) (| • | |
| Black Histic (A3) Hydrogen Sulfide (A | 4) | Loamy Mucky | | | R (O) | | | l8) (outside M | |
| Stratified Layers (A5 | | Loamy Gleye | | F2) | | | | in Soils (F19) (| |
| Organic Bodies (A6) | | Depleted Mai | | 6) | | | alous Bright I RA153B) | _oamy Soils (F | ∠U) |
| 5 cm Mucky Mineral | | | | | | | arent Materia | al (TF2) | |
| Muck Presence (A8) | (LRR U) | Redox Depre | | . , | | | | Surface (TF12 | ?) |
| 1 cm Muck (A9) (LR | | Marl (F10) (L | .RR U) | | | | (Explain in R | | |
| Depleted Below Dar | | Depleted Oct | | | | _ | | | |
| Thick Dark Surface Coast Prairie Redox | | Iron-Mangan | | | | | | rophytic veget | 1 |
| Sandy Mucky Miner | | | | | , U) | | - | gy must be pro | |
| Sandy Gleyed Matri | | Delta Ochric Reduced Ver | | | 504 150R | | iess disturbe | d or problemat | ic. |
| Sandy Redox (S5) | (0.1) | Piedmont Flo | | | | | | | |
| Stripped Matrix (S6) | | | | | | RA 149A, 1530 | C. 153D) | | |
| Dark Surface (S7) (| LRR P, S, T, U) | | | • | , , , , , , | , | ,, | | |
| Restrictive Layer (if ob | served): | | | | | | | | |
| | , | | | | | | | | |
| Туре: | | | | | | | | | |
| Type: Depth (inches): | | | | | | Hydric Sol | l Present? | Yes | No |
| | | | | | | Hydric Sol | l Present? | Yes | No |
| Depth (inches): | | | | | | Hydric Sol | l Present? | Yes | No |
| Depth (inches): | | | | | | Hydric Sol | l Present? | Yes 🔀 | No |
| Depth (inches): | | | | | | Hydric Sol | l Present? | Yes | No |
| Depth (inches): | | | | | | Hydric Sol | l Present? | Yes | No |
| Depth (inches): | | | | | | Hydric Sol | l Present? | Yes | No |
| Depth (inches): | | | | | | Hydric Sol | l Present? | Yes | No |
| Depth (inches): | | | | | | Hydric Sol | l Present? | Yes | No |
| Depth (inches): | | | | | | Hydric Sol | l Present? | Yes | No |
| Depth (inches): | | | | | | Hydric Sol | l Present? | Yes | No |
| Depth (inches): | | | | | | Hydric Sol | l Present? | Yes | No |
| Depth (inches): | | | | | | Hydric Sol | I Present? | Yes | No |
| Depth (inches): | | | | | | Hydric Sol | | | No |
| Depth (inches): | | | | | | Hydric Sol | I Present? | | No |
| Depth (inches): | | | | | | Hydric Sol | | | No |
| Depth (inches): | | | | | | Hydric Sol | | | No |
| Depth (inches): | | | | | | Hydric Sol | | | No |
| Depth (inches): | | | | | | Hydric Sol | | | No |
| Depth (inches): | | | | | | Hydric Sol | | | No |
| Depth (inches): | | | | | | Hydric Sol | | | No |
| Depth (inches): | | | | | | Hydric Sol | | | No |
| Depth (inches): | | | | | | Hydric Sol | | | No |
| Depth (inches): | | | | | | Hydric Sol | | | No |

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

| Project/Site: Perde Line/ Riverdale Rd City/County: Riverdale | / PG Sampling Date: 5/2 4/13 |
|---|--|
| Project/Site: Pur du Line / Riverdolle Rd City/County: Riverdole Applicant/Owner: MTA Investigator(s): S5, MD Section, Township, Range: | State: 11 D Sampling Point: W34 - WTP3 |
| Investigator(s): S5, MD Section, Township, Range: | Santa Variation of the Control of th |
| Landform (hillslope, terrace, etc.): depressure Local relief (concave, convex, | |
| Catalor (Initialope, terrace, etc.). | none): Slope (%): |
| Subregion (LRR or MLRA): MLRA 149A Lat: Long: | Datum: |
| Soil Map Unit Name: MASTIGNA-Vowner-Undandard Complex | NWI classification: FEMIA/C |
| Are climatic / hydrologic conditions on the site typical for this time of year? Yes No | (If no, explain in Remarks.) |
| Are Vegetation, Soil, or Hydrology significantly disturbed? $\mathcal{N} \mathcal{O}$ Are "Normal | Circumstances" present? Yes No |
| Are Vegetation, Soil, or Hydrology naturally problematic? NO (If needed, ϵ | explain any answers in Remarks.) |
| SUMMARY OF FINDINGS - Attach site map showing sampling point location | |
| Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: Yes No Is the Sampled Area within a Wetland? | Yes No |
| Plato #8. Wetland is within Storn water Menry ment | 150 al is dominated |
| by Phraguites oustralis. | |
| HYDROLOGY | |
| Wetland Hydrology Indicators: | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is required; check all that apply) | Surface Soil Cracks (B6) |
| Surface Water (A1) Aquatic Fauna (B13) | Sparsely Vegetated Concave Surface (B8) |
| High Water Table (A2) Mart Deposits (B15) (LRR U) | Drainage Patterns (B10) |
| ∠ Saturation (A3) Hydrogen Sulfide Odor (C1) | Moss Trim Lines (B16) |
| Water Marks (B1) Oxidized Rhizospheres along Living Roots (C3) | Dry-Season Water Table (C2) |
| Sediment Deposits (B2) Presence of Reduced Iron (C4) | Crayfish Burrows (C8) |
| Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) | Saturation Visible on Aerial Imagery (C9) |
| Algal Mat or Crust (B4) Thin Muck Surface (C7) | ✓ Geomorphic Position (D2) |
| Iron Deposits (B5) Other (Explain in Remarks) | Shallow Aquitard (D3) |
| Inundation Visible on Aerial Imagery (B7) | FAC-Neutral Test (D5) |
| Water-Stained Leaves (B9) | Sphagnum moss (D8) (LRR T, U) |
| Field Observations: | |
| Surface Water Present? Yes No V Depth (inches): | |
| Water Table Present? Yes No Depth (inches): | / |
| Saturation Present? Yes No Depth (inches): Wetland (includes capillary fringe) | Hydrology Present? Yes No |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if av | vailable: |
| | |
| Remarks: | = == |
| | g = 10 - |
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| V" ' | |
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| | |

| ee Stratum (Plot size: 301) | Absolute | Dominant | Indicator | Dominance Test works | sheet: | |
|--|-----------------|-------------|-----------|--|--|-----------------------------|
| ge ditaidii (Flot size,) | % Cover | Species | Status | Number of Dominant Sp | ecies | 1000 |
| | | | · | That Are OBL, FACW, o | r FAC: | (A) |
| | | | ı | Total Number of Domina | ant / | |
| 61.1 | | | | Species Across All Strat | a:/ | (B) |
| | | | | Percent of Dominant Sp That Are OBL, FACW, of | ecies | 0% (A |
| | | | | | | |
| | | | | Prevalence Index work | | |
| | | | | Total % Cover of: | | |
| 9 | | | | OBL species | | |
| 50% of total cover: | 20% of | total cover | r | FACW species | x2= | |
| pling/Shrub Stratum (Plot size: 301) | | | | FAC species | x3= | |
| | | | | FACU species | | |
| | | | | UPL species | | |
| NONE | | | | Column Totals: | (A) | (E |
| | | | | Prevalence index | = B/A = | |
| | | | | Hydrophytic Vegetatio | | |
| | | | | X 1 - Rapid Test for H | | ation |
| | | | | 2 - Dominance Tesi | | |
| | | | | 3 - Prevalence Inde | | |
| _ | | | | Problematic Hydrop | hytic Vegetation | (Explain) |
| 50% of total cover: | 20% of | total cover | ۱ | , | | 1 |
| rb Stratum (Plot size:) | | | -u | ¹ Indicators of hydric soil | and wetland hyd | Irology musi |
| Phonomites australis | 00 | / | FACW | be present, unless distu | rbed or problems | itic. |
| | | 10.00 | | Definitions of Four Ve | getation Strata; | |
| | | | | Tree - Woody plants, e | veluding vices 2 | in /7 C |
| | | | | more in diameter at bre height. | ast height (DBH), | regardless |
| | | | | Sapling/Shrub - Wood than 3 in. DBH and grea | ly plants, excludir ater than 3.28 ft (| ng vines, les 1 m) tall. |
| | | | | Herb – All herbaceous of size, and woody plan | (non-woody) plan | its, regardle |
| | | | | Woody vine - All wood height: | | |
| | 100 | = Total Co | | noight. | | |
| 50% of total cover: | | | | | | |
| ody Vine Stratum (Plot size: 30) | <u>~</u> 20% Of | roral cove | | 1 1 | | |
| | | | | | | |
| | | | | | | |
| NONE | | | | | | |
| | | | E-S-S | | | |
| | | | | District of | | |
| | | = Total Co | Wet | Hydrophytic Vegetation | , | |
| 50% of total cover | | | | Present? Ye | s No_ | |
| marks. (If observed, list morphological adaptations belo | | total cove | | | | |
| throughout adaptations below | >W).: | | | | | |
| | | | | | | |

Sampling Point: $\underline{\mathcal{W}24}$ - $\underline{\mathcal{W}7}$

| Profile Description: (Describe to the d | epth needed to docume | ent the Indic | ator or confirm | the absence of Inc | dicators.) |
|---|---------------------------|---------------|------------------|----------------------------|--|
| Depth Matrix | | Features | | | |
| (inches) Color (moist) % | Color (moist) | <u>% T</u> | /pe Loc² | Texture | Remarks |
| 9-191 10 YE % 10 | | | | <u>SL</u> | |
| 10-15" 11 5/0 95 | 194124/6 | 5 | - M | 50 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | (F) |
| | _ | | | | |
| | | | | | |
| ¹Type: C=Concentration, D≃Depletion, R | M-Dadward Matrix, MO | | | 7. | |
| Hydric Soil Indicators: (Applicable to | III I RRE uplace others | -Masked Sai | nd Grains. | | Pore Lining, M=Matrix. |
| Histosol (A1) | | | | | roblematic Hydric Soils ³ : |
| Histosof (A1) Histic Epipedon (A2) | | | 58) (LRR S, T, L | | |
| Black Histic (A3) | Thin Dark Surf | ace (59) (Li | (R S, T, U) | | (A10) (LRR S) |
| Hydrogen Sulfide (A4) | Loamy Mucky Loamy Gleyed | | (LRR O) | | ertic (F18) (outside MLRA 150A,B) |
| Stratified Layers (A5) | Depleted Matri | | | | loodplain Soils (F19) (LRR P, S, T) |
| Organic Bodies (A6) (LRR P, T, U) | Redox Dark S | | | | Bright Loamy Soils (F20) |
| 5 cm Mucky Mineral (A7) (LRR P, T, | U) Depleted Dark | | 3 | (MLRA 15 | ທິດສາງ Material (TF2) |
| Muck Presence (A8) (LRR U) | Redox Depres | | , | | w Dark Surface (TF12) |
| 1 cm Muck (A9) (LRR P, T) | Mari (F10) (LF | . , | | | ain in Remarks) |
| Depleted Below Dark Surface (A11) | Depleted Ochr | • | .RA 151) | | an in Normano, |
| Thick Dark Surface (A12) | Iron-Mangane | se Masses (| F12) (LRR O, P, | T) ³ Indicators | of hydrophytic vegetation and |
| Coast Prairie Redox (A16) (MLRA 1 | 50A) Umbric Surfac | | | | hydrology must be present, |
| Sandy Mucky Mineral (S1) (LRR O, | | | | | isturbed or problematic. |
| Sandy Gleyed Matrix (S4) | Reduced Verting | c (F18) (ML | RA 150A, 150B) |) | |
| Sandy Redox (S5) | | | (F19) (MLRA 14 | | |
| Stripped Matrix (S6) | Anomalous Br | ight Loamy 8 | Soils (F20) (MLF | RA 149A, 153C, 153 | D) |
| Dark Surface (S7) (LRR P, S, T, U) | | | | | |
| Restrictive Layer (if observed): | | | | | |
| Type: | | | | | |
| Depth (inches): | | | | Hydric Soll Pres | sent? Yes / No |
| Remarks: | | | | | |
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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region Project/Site: Purple Line / R. verdole Rd City/County: PINES do-12/PG Sampling Date: 5/24/1 Applicant/Owner: MTA Investigator(s): 55 MD Section, Township, Range: Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): CON VCY Slope (%): Subregion (LRR or MLRA): MLLA 149A Lat: Subregion (LRR or MLRA): MLRA 149A Lat: Long: Long: NWI classification: NWI classification: UPL Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ____ (If no, explain in Remarks.) Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Yes_ Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Is the Sampled Area Hydric Soil Present? within a Wetland? Wetland Hydrology Present? Arco significantly disturbed , contours Pill moteries bosin construction. HYDROLOGY Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required, check all that apply) __ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) __ Surface Water (A1) Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) ___ Drainage Patterns (B10) ___ Saturation (A3) Hydrogen Sulfide Odor (C1) Moss Trim Lines (B16) ___ Water Marks (B1) ___ Oxidized Rhizospheres along Living Roots (C3) ___ Dry-Season Water Table (C2) ___ Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) ___ Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) ___ Algal Mat or Crust (B4) __ Thin Muck Surface (C7) Geomorphic Position (D2) ___ Iron Deposits (B5) Other (Explain in Remarks) Shallow Aquitard (D3) ___ Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Water-Stained Leaves (B9) Sphagnum moss (D8) (LRR T, U) Field Observations: Yes _____ No ____ Depth (inches): __ Surface Water Present? Yes ____ No _ X Depth (inches): Water Table Present? Yes ____ No __Y Depth (inches): _____ > 3^h Saturation Present? Wetland Hydrology Present? Yes_ (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:

| ree Stratum (Plot size: 30°) | Absolute | Dominan | Indicator | Dominance Test works | neet: | | |
|---------------------------------------|-----------------|------------|-----------------|--|-------------------------|-----------------|----------|
| . Plotonus occidentalis | % Cover | Species | Status Force | Number of Dominant Spe That Are OBL, FACW, or | cies | 9 | |
| Jalons no | (.) | | FACU | | _ | 1 | (A) |
| Mores 180 | 10 | W | FACIL | Total Number of Dominar Species Across All Strata | it | 12 | (B) |
| Solly Mericono | - — | | FAC | Percent of Dominant Spe | -12- | -/ | |
| Foodly retailes | 20 | | OBL | That Are OBL, FACW, or | FAC: | 75 % | . (A/E |
| Querrus polustris | 6 | | DAVI | Prevalence Index works | heet: | | |
| | | | +/CW | Total % Cover of: | | Multiply by: | |
| | 63 | = Total Co | ver | OBL species | | | |
| 50% of total cover: 3 | 5 20% of | total cove | 12-6 | FACW species | | | |
| apling/Shrub Stratum (Plot size: 301) | | | | FAC species | x3: | = | |
| Lonicero Mockii | 10 | _ / | UPL | FACU species | x 4 : | = | |
| Mores alba | 5 | | FACU | UPL species | x 5 = | | _ |
| ITANS caleTypia | _ | | UPL | Column Totals: | (A) | rita . | _ (8 |
| Rosa multiPlaria | 3 | | FACU | Prevalence Index = | - R/Δ = | | |
| Laguidant - Sporiflio | - \$- | | FAC | Hydrophytic Vegetation | | | |
| Acer reguldo | | | FAC | | | | |
| | | | | 2 - Dominance Test i | | vegeration | |
| | | | | 3 - Prevalence Index | | | |
| | 39 | = Total Co | ver | | | ue le i | |
| 50% of total cover: 19 | <u>S</u> 20% of | total cove | 7-8 | Problematic Hydroph | yuc vege | tation (Expla | dn) |
| erb Stratum (Plot size: SO) | , | | | Indicators of hydric soil a | | | . |
| Festica gatersis | 6 | / | FACU | be present, unless disturb | nd wettar ped or pro | blematic. | must |
| Liney Cresous | 3 | -/, | FAC | Definitions of Four Veg | etation S | trata: | |
| | | | <u>98L</u> | Tree - Woody plants, exc | dudina vir | nes 3 in /7 6 | (cm) |
| | | | | more in diameter at breas height. | it height (| DBH), regard | less |
| | | | | Sapling/Shrub - Woody | plante es | valudia a ula | |
| | | | | than 3 in. DBH and great | er than 3. | 28 ft (1 m) tal | i. |
| | | | | Herb – All herbaceous (n | on-wood | /) nlants reas | ardlac |
| | | | | of size, and woody plants | less than | 1 3.28 ft tall. | ., 0162 |
| | | | | Woody vine – All woody | vines are | ater than 3.2 | 8 ft in |
| | | | | height. | J | | J 10 111 |
| | 13 | = Total Co | ver | | | | |
| 50% of total cover: | | | | | | | |
| | | | | | | | |

85 20% of total cover: 34 Remarks: (If observed, list morphological adaptations below).

50% of total cover: _

Hydrophytic Vegetation Present?

| Depth | Matrix | | Redox F | eatures | | he absence | | | |
|----------------|--|------------------|--------------------|------------------|--------------|-------------|---------------|---------------|---------|
| (inches) | Color (moist) | % | Color (moist) | %Type | Loc² | Texture | | Remarks | |
| 0-84 | 104E 44 | 100 | | | | 41 | 11/D | 11 mote | |
| | | | | | |) [| 6// TI | INOIC | 110-1 |
| | | | | | | | | | |
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| 11 | | | | | | | | | |
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| | | | | | | | | | |
| Type: C=Co | ncentration, D=Dep | lation DM-Da | decad Market 140 A | | | 7 | | | |
| lydric Soil le | ndicators: (Application) | able to all I Pi | duced Matrix, MS=N | nasked Sand Gr | ains. | | | ing, M=Matrix | |
| Histosol (| | TOIR TO GII ENT | | | | | | atic Hydric S | soils": |
| | | - | Polyvalue Below | | | | luck (A9) (L | - | |
| | pedon (A2) | - | Thin Dark Surfa | | | | luck (A10) (| | |
| Black His | | - | Loamy Mucky M | | (O) | | | 8) (outside N | |
| | Sulfide (A4) | _ | Loamy Gleyed M | | | | | n Soils (F19) | |
| | Layers (A5) | T 10 | Depleted Matrix | | | | | oamy Soils (F | -20) |
| Organic t | Bodies (A6) (LRR P | , i, U) _ | Redox Dark Sur | | | | RA 153B) | | |
| | cky Mineral (A7) (LF | | Depleted Dark S | * * | | | arent Materia | | |
| | sence (A8) (LRR U | , . | Redox Depressi | | | | | Surface (TF1) | 2) |
| | k (A9) (LRR P, T) Below Dark Surfact | - (011) | Mari (F10) (LRF | | F.4.\ | Other | Explain in F | emarks) | |
| | rk Surface (A12) | 3 (A11) _ | Depleted Ochrid | | | 3 | | | |
| | | 41 DA 450A) - | Iron-Manganese | Masses (F12) (| LRR O, P, T | | | ophytic veget | |
| Coast Fit | airie Redox (A16) (N ucky Mineral (S1) (L | ILKA 15UA) | | | ', U) | | | gy must be pr | |
| | eyed Matrix (S4) | .KK (), (S) | Delta Ochric (F1 | | 04 45000 | uni | ess disturbe | or problema | tic. |
| Sandy Re | | - | Reduced Vertic | | | | | | |
| Stripped | | - | Piedmont Flood | | | | | | |
| | face (S7) (LRR P, S | · T III | Anomalous Brig | nt Loamy Soils (| 1-20) (MILRA | 149A, 153C | , 153D) | | |
| Restrictive L | ayer (if observed): | , , , 0) | | | | | | | · |
| Type: | | | | | | | | | |
| | .09990 | | _ | | | | | | |
| Depth (inc | nes): | | - | | | Hydric Soil | Present? | Yes | No |
| Remarks: | | | | | | | | | |
| K' X ()3 | Pot | re d | by fill | at 8' | | | | | |
| , , | | 30 | 39 | 9 | | | | | |
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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region Applicant/Owner: Investigator(s): Section, Township, Range: Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): _Cancave Subregion (LRR or MLRA): Lat: Soil Map Unit Name: NWI classification: Are climatic / hydrologic conditions on the site typical for this time of year? Yes (If no, explain in Remarks.) Are Vegelation , Soil ___, or Hydrology __ __ significantly disturbed? Are "Normal Circumstances" present? Yes __, Soil _____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? is the Sampled Area Hydric Soil Present? within a Wetland? Wetland Hydrology Present? Remarks: **HYDROLOGY** Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) Surface Water (A1) Aquatic Fauna (B13) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Mari Deposits (B15) (LRR U) Drainage Patterns (B10) Saturation (A3) Hydrogen Sulfide Odor (C1) Moss Trim Lines (B16) Water Marks (B1) Oxidized Rhizospheres along Living Rools (C3) Dry-Season Water Table (C2) Sediment Deposits (B2) Presence of Reduced Iron (C4) _ Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Thin Muck Surface (C7) Geomorphic Position (D2) Iron Deposils (B5) Other (Explain in Remarks) Shallow Aquitard (D3) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Water-Stained Leaves (B9) Sphagnum moss (D8) (LRR T, U) Field Observations: Surface Water Present? Depth (inches Water Table Present? Saturation Present? Depth (inches): Wetland Hydrology Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:

| | | Dominant | | Sampling Point: W P 2 |
|--|-------------|---------------|----------------|--|
| The state of the s | | | | Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A |
| NAVE TO SEE THE SECOND | Lenv | 15. Fa. 5 | | Total Number of Dominant Species Across Ali Strata: (B |
| | | | | Percent of Dominant Species |
| S | | | 250.04 | THAT A COBE, FACOV, OF FAC. |
| The superior of the superior o | | to faile b | | Prevalence Index worksheet: Total % Cover of: Multiply by: |
| forming in the standing in affect | 118 | = Total Co | er | OBL species x 1 = |
| 50% of total cover: | | | | FACW species x 2 = |
| pling/Shrub Stratum (Plot size:) | es es la | 1.1 | | FAC species x 3 = |
| Soliv Migva | 60 | Y | FACW | FACU species x 4 = |
| Conglanthus occidentalis | 25 | V | DRI | UPL species x 5 = |
| - Children and Section and Sec | | | UDL | Column Totals: (A) |
| | | | | Prevalence Index = B/A = |
| | | | | Hydrophytic Vegetation indicators: |
| | | | | Rapid Test for Hydrophytic Vegetation |
| | | | | ✓ 2 - Dominance Test is >50% |
| | 126 | | - | 3 - Prevalence Index is ≤3.0¹ |
| 50% of total cover: 42 | 5 20% of | = Total Cover | rer 17 | Problematic Hydrophytic Vegetation¹ (Explain) |
| rb Stratum (Plot size:) | | , | 1 dr. V 19-26 | the distance of the second state of the second |
| Leevzia Dryzoilles | 25 | Y | OBI | ¹ Indicators of hydric soil and wetland hydrology mus be present, unless disturbed or problematic. |
| | | | UDL | |
| 32 made@acenser(| | CONTRACTOR OF | el abag | Definitions of Four Vegetation Strata: |
| Mark Tind County | | - T C-1 | 754 87 63 | Tree - Woody plants, excluding vines, 3 in. (7.6 cm) |
| all a try school true falls C. | Trigit with | 116:35 | SQUENIC C | more in diameter at breast height (DBH), regardless |
| (82) were a final was ald to the cases. | | | 2017 11 1 | helght. |
| | | 1,44 | | Sapling/Shrub – Woody plants, excluding vines, lest than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| and the second s | | (c) 100 (c) | 1.1 113007 123 | and one portain greater than 3.20 ft (1 m) tail. |
| georgia and vol. | | | | Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. |
| | | | | Woody vine - All woody vines greater than 3.28 ft i |
| | — | | | height. |
| | 110 | 1.00 | | Company of the second s |
| 50% of total cover: | 5 20% of | = Total Cover | | a o and a |
| ody Vine Stratum (Plot size:) | i Sign 2 | 0 (0.25) 10 | turviq brassic | liner or area about the state of the second of |
| | | | | |
| | | | | AAA |
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| | | | | Hydrophytic |
| | | = Total Cov | er | Vegetation ~ |
| 50% of total cover: | 20% of | total cover | : | Present? Yes No |
| marks: (If observed, list morphological adaptations belo | | | | |
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Sampling Point: WP 25-/

| Depth | Matrix | | | K Feature: | | | | | | |
|--|---|-----------------|------------------------------|------------|-------------|------------|--------------|---------------------------------------|-----------------------------|----------------------|
| (inches) | Color (moist) | | Color (moist) | | Type | _Loc2 | Texture | | Remarks | |
| 2-21 | 109K413 | 100 - | | | | | -5 | | | |
| 2-8 | 104R4/1 | 100 | | | | | 51 | | | - |
| 84 | 1048413 | 150 | | | | | er 1 | | | |
| | 1011112 | | | | | | 21 | | | |
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| Type: C=C | Concentration, D=Der | oletion, RM=Red | duced Matrix, MS | =Masked | Sand Gra | alns. | | | ining, M=Matri | |
| | Indicators: (Applic | able to all LRF | | | | | | for Proble | matic Hydric (| Solis ³ : |
| Histoso | | - | Polyvalue Be | low Surfac | ce (S8) (L | RR S, T, L | | Muck (A9) (| | |
| | pipedon (A2) | - | Thin Dark Su | rface (S9) |) (LRR S, ' | T, U) | | Muck (A10) | | |
| | listic (A3) | - | Loamy Mucky | | | O) | | | ⁻ 18) (outside N | |
| | en Sulfide (A4) | - | Loamy Gleye | | F2) | | | | ain Soils (F19) | |
| | d Layers (A5) | | Depieted Mat | | • | | | _ | Loamy Soils (| F20) |
| | : Bodies (A6) (LRR P ucky Minerai (A7) (LI | | Redox Dark 8 | | | | | RA 153B) | | |
| Muck D | resence (A8) (LRR U | KKP, 1, U) _ | Depicted Dar | | | | | arent Mater | | |
| | uck (A9) (LRR P, T) | " | Redox Depre Mari (F10) (L | | 0) | | | | k Surface (TF1 | 2) |
| | d Below Dark Surfac | e (A11) | Nan (F10) (L Depieted Och | | /BAI PA 15 | id \ | Other | (Explain in | Remarks) | |
| | ark Surface (A12) | | iron-Mangan | | | | T\ 3lndi | cators of by | drophytic veget | ation and |
| | Prairie Redox (A16) (F | MLRA 150A) | Umbric Surfa | | | | • | | ogy must be pr | |
| | Mucky Mineral (S1) (I | | Delta Ochric | | | ٠, | | _ | ed or problema | |
| | Gleyed Matrix (S4) | | Reduced Ver | | | 0A. 150B) | | C35 UISIUI D | ed of problema | iic. |
| | Redox (S5) | _ | Piedmont Flo | | | | | | | |
| Stripped | d Matrix (S6) | _ | | | | | | | | |
| | - Matrix (GG) | _ | Anomaious B | right Loar | ກy Soils (F | 20) (MLR | A 149A, 1530 | C. 153D) | | |
| | ırface (S7) (LRR P, S | S, T, U) - | Anomalous B | right Loan | ny Soils (F | 20) (MLR | A 149A, 1530 | c, 153D) | | |
| Dark Su | | | Anomalous B | right Loan | ny Soils (F | -20) (MLR | A 149A, 1530 | c, 153D) | 7 TETS. | |
| Dark Su | ırface (S7) (LRR P, S Layer (if observed): | | Anomalous B | right Loan | ny Soils (F | F20) (MILR | A 149A, 1530 | c, 153D) | *** | |
| Dark Su Restrictive Type: | urface (S7) (LRR P, S Layer (if observed): | | Anomalous B | right Loan | ny Soils (F | F20) (MLR | | · · · · · · · · · · · · · · · · · · · | Yes | No. |
| Dark Su Restrictive Type: | ırface (S7) (LRR P, S Layer (if observed): | | Anomalous B | right Loan | ny Soils (F | F20) (MLR | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes <u></u> | No |
| Dark Su Restrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - Anomalous B | right Loan | ny Soils (F | F20) (M·LR | | · · · · · · · · · · · · · · · · · · · | Yes <u>K</u> | No |
| Dark Su Restrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes <u></u> | No |
| Dark Su Restrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes <u></u> | No V |
| Dark Su Restrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes <u></u> | No_V |
| Dark Su Restrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes <u></u> | No_V |
| Dark Sulestrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes <u> </u> | No_V |
| Dark Su lestrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | bed ten | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes <u></u> | No V |
| Dark Su lestrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes <u></u> | No V |
| Dark Su lestrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes | No_V |
| Dark Su lestrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes | No_V |
| Dark Sustrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes | No V |
| Dark Sustrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes | No V |
| Dark Sustrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes | No V |
| Dark Su lestrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes | No V |
| Dark Su lestrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes | No V |
| Dark Sulestrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes | No V |
| Dark Su Restrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes | No V |
| Dark Sulestrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes | No V |
| Dark Su lestrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes | No V |
| Dark Su Restrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes | No V |
| Dark Sulestrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes | No V |
| Dark Sustrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes | No V |
| Dark Suestrictive Type: Depth (In | urface (S7) (LRR P, S Layer (if observed): | | - | | | | Hydric Sol | · · · · · · · · · · · · · · · · · · · | Yes | No V |

Stream Features Meganish is the street of t

| Date: 2-9-1 Project Site: Purple We wus #: 30 |
|---|
| Observer(s) BU HS |
| Stream Flow: Perennial: Intermittent Ephemeral Gradient: 2% Classification: RUSB2x-117-104 |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: VI Van |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line sediment sorting sediment sorting sediment sorting scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community other (list): the presence of litter and debris Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width Depth Avg. Water Depth No water |
| Has stream morphometry been altered? <u>ULS</u> Describe: |
| Habitat and Pollutants: Substrate (predominant type (s)): Habitat Complexity (characterize): Substrate Sund Sund |
| Bank Erosion: Severe Moderate Minor X Describe: VI VVV Silt Deposition: MANOX |
| Pollutants (observation / potential sources): |

| Biological Habitat For (check all that apply): Federally Listed species | for solar Fish Spawn Areas |
|--|--|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | (d) to (d) the Amend C |
| () | Rie an Flore |
| Riparian Zone: Development: | Forest Union Entertain Chesinon Constitution |
| Riparian vegetation: Forest | Shrubs Herbs Herbs |
| Dominant Species: red muple | , tulno poplar, black |
| locust, black | |
| Riparian Buffer Width: 35 | connect tree (check all that apply): |
| Approximate % Shading by Woody Species: | 30% |
| Notes: | and the state of t |
| whose handle | |
| The discount of the country of the c | |
| Avg Wyter Dagon and the or | |
| | The manufacture of the state of |
| | |
| | (atoms) and Pollutants: Substitute to add on the true: |
| | |
| | |
| | adhoes a |
| | |
| | |

Stream Features (vigae fad) its sports for and again show

| Date: 12 9/11 Project Site: Pwp Live wus #: 032 |
|---|
| Observer(s) Bb H3 |
| Stream Flow: Perennial: Intermittent Ephemeral Gradient: 0000 Classification: RUSBLUW VWP |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: VP rop |
| Channel Has (check all that apply): Bed and Banks OHWM Clear, natural line impressed on the bank Changes in character of soil the presence of wrack line |
| shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition water staining the presence of litter and debris sediment sorting scour multiple observed or predicted flow events abrupt change in plant community other (list): |
| Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width 4 Depth 1 Avg. Water Depth No Water |
| Has stream morphometry been altered? <u>VCS</u> Describe: Strutgliebed w vy-vop placement |
| Habitat and Pollutants: Substrate (predominant type (s)): |
| Habitat Complexity (characterize): \(\ldotw - \ldot \ldot \tau \tau \tau \tau \tau \tau \tau \ta |
| Bank Erosion: Severe Moderate Minor 1 |
| Describe: |
| Silt Deposition: |
| Pollutants (observation / potential sources): word wnoff |
| Stormwater Outfalls: Now |

| Biological Habitat For (check all that apply): Federally Listed species | Manufacture of the Areas |
|--|--|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | Daververts the wife |
| | twoFs/ms 18 |
| Riparian Zone: Development: | ested suffer and road |
| Riparian vegetation: Forest | Shrubs X Herbs |
| Dominant Species: BOY elder, 8 | ycumne, Maple, Doisor |
| Try, multitlara | Mel |
| Riparian Buffer Width: | Channel Lins (check all (hat apply): |
| Approximate % Shading by Woody Species: | 90% |
| Notes: flows out and | noto culvert that |
| Converts to WV | 5 29 |
| aurupt absence in sent account of aurupt absence in sent account of their. | control of the contro |
| | |
| | The state of the s |
| | Habitation Pollutants: Substitute (protomined rate (8)) |
| | February (characterists): |
| | |
| taie Mai | Pank Structure cavara Maga |
| | raha sad |
| | |
| | Pollutanii (abemvarimi / potential marices). |

W33

| WEI EARD DETERMINATION DATA FORW - Atlantic and Guif Coastal Plain Region |
|--|
| Project/Site: PUND & Lity/County: PG Sampling Date: 1251 |
| Applicant/Owner: MTA State: MO Sampling Point: WTP 33- |
| Investigator(s): 60, HS Section, Township, Range: |
| Landform (hillslope, terrace, etc.): SWM DW Local relief (concave, convex, none): Con Cave Slope (%): 4 |
| Subregion (LRR or MLRA); MLRA 148 Lat: Long: Datum: |
| Soil Map Unit Name: Udorthents, 0-65% Slopes NWI classification: PFMIFX |
| Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.) |
| Are Westerfaller |
| Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No |
| SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. |
| Hydrophytic Vegetation Present? Hydric Soll Present? Wetland Hydrology Present? Yes No is the Sampled Area within a Wetland? Yes No |
| |
| HYDROLOGY |
| Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) |
| Surface Water (A1) Aquatic Fauna (B13) Sparsely Vegetated Concave Surface (B8) |
| High Water Table (A2) Marl Deposits (B15) (LRR U) Drainage Patterns (B10) |
| Hydrogen Sulfide Odor (C1) Moss Trim Lines (B16) |
| Water Marks (B1) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2) |
| Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) |
| Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) |
| Algal Mat or Crust (B4) Thin Muck Surface (C7) Geomorphic Position (D2) |
| Iron Deposits (B5) Other (Explain in Remarks) Shallow Aquitard (D3) |
| Inundation Visible on Aerial Imagery (B7) |
| Water-Stained Leaves (B9) Sphagnum moss (D8) (LRR T, U) |
| Field Observations: |
| Surface Water Present? Yes No Depth (inches): 1 - unknown |
| Water Table Present? Yes No Depth (Inches): |
| Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: |
| |
| Remarks: |
| PEM serves as swin pind. |
| V _ 100 · 1 = 122 |
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| | Absolute Dominant Indicato | |
|--|--|--|
| ree Stratum (Plot size:) | | Number of Dominant Species That Are OBL, FACW, or FAC: (A) |
| | | Total Number of Dominant Species Across All Strata: (B) |
| | | - 1 |
| | | That Are OBL, FACW, or FAC: 100 (A |
| TO SAME AND STATE OF THE SAME | THE TAX OF THE PARTY OF THE PAR | Prevalence Index worksheet: |
| _ cos _ call interest con the allering to | | Total % Cover of: Multiply by: |
| | = Total Cover | OBL species x 1 = |
| 50% of total cover: | 20% of total cover: | FACW species x 2 = |
| apling/Shrub Stratum (Plot size:) | | FAC species x 3 = |
| | | FACU species x 4 = |
| | | UPL species x 5 = |
| | | Column Totals: (A) (|
| | | |
| | | |
| | | Rapid Test for Hydrophytic Vegetation |
| 3 | | - 2 - Dominance Test is >50% |
| • | | 3 - Prevalence Index is ≤3.0¹ |
| | = Total Cover | Problematic Hydrophytic Vegetation (Explain) |
| | 20% of total cover: | - the state of the |
| lerb Stratum (Piot size:). Typha attalia | 100 4 OBL | ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| JUNCUS + HUSUS | 8 FAU | |
| | 421203-111 | Tree - Woody plants, excluding vines, 3 in. (7.6 cm) |
| and the state of t | end, if a state way | more in diameter at breast height (DBH), regardless height. |
| peliting of meaning with a first and a second control of | | Sapling/Shrub – Woody plants, excluding vines, les |
| | | than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| | | Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall. |
| 0 | | |
| 1 | | Woody vine – All woody vines greater than 3.28 ft is height. |
| 2 | | The state of the s |
| The second secon | 108 = Total Cover | |
| 50% of total cover: 104 | 20% of total cover: 22 | Description |
| Voody Vine Stratum (Plot size:) | of the comments of | The state of the s |
| | | |
| | | - |
| | | - |
| | | - (|
| | | |
| | | - Hydrophytic |
| | = Total Cover | Vegetation Present? Yes No |
| 50% of total cover: | | - 110361111 163 <u>~ 110</u> |
| emarks: (If observed, list morphological adaptations belo | w). | |
| | | |
| | | |
| | | |
| | | |
| | | |

Sampling Point: WTP33-/

| Depth Inches) Color (| Matrix (moist) | % | Color (mo | <u>kedox</u> pist) | Features % | Type ¹ | Loc ² | Texture | | Remarks | |
|--|-----------------------------|----------------|-----------|-----------------------|-----------------------|--------------------------|------------------|------------------------|--------------|-----------------------------------|------------------|
| 0-4 10YR4 | | 100 | | | | | | SIC | 0. | otlets | |
| 1- 251 | 5/2 | | 7.5YR | 4/11 | 20 | | 144 | | Ko | orce15 | |
| 4.01 | 0,00 | DU _ | 1.012 | . 11 10 | 80 | $\overline{\mathcal{C}}$ | M | fsc_ | | | |
| | | | | | | | | | | - | |
| | | | | | | | | | | | |
| | | | | - | | | | | | | |
| | | | | | | | | | 100 | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| ype: C=Concentratio ydric Soil Indicators | n, D=Depl | etion, RM=R | educed Ma | trix, MS: | -Masked | Sand Gra | ains. | ² Location: | PL=Pore L | ining, M=Matri | х. |
| _ Histosoi (A1) | · (Applice | inie to ati El | | | | | | | | matic Hydric (| Solls": |
| _ Histic Epipedon (A; | 2) | | Polyv | aine Reid | w Surfac | :e (S8) (L | RR S, T, L | | uck (A9) (L | | |
| Black Histle (A3) | 4) | | l nin i | Alle Sun | Mineral (| (LRR S, F1) (LRR | 1, U) | | uck (A10) | | 51 D 5 4 5 0 4 1 |
| _ Hydrogen Sulfide (/ | A4) | | | | Matrix (f | | 0) | | | 18) (outside N ain Soils (F19) | |
| Stratified Layers (A | | | Deple | | | -/ | | | | Loamy Soils (| |
| Organic Bodies (A6 |) (LRR P, | T, U) | | | ırface (F | 6) | | | A 153B) | Louiny Cons (| 20) |
| 5 cm Mucky Minera | I (A7) (LR | R P, T, U) | Deple | led Dark | Surface | (F7) | | • | rent Mater | ial (TF2) | |
| Muck Presence (A8 | | | | | sions (F8 | 3) | | | | Surface (TF1 | 2) |
| _ 1 cm Muck (A9) (LI | | | | F10) (LR | - | | | Other (I | Expialn in I | Remarks) | |
| _ Depleted Below Da | | (A11) | | | | MLRA 1 | | | | | |
| _ Thick Dark Surface _ Coast Prairie Redo | | I DA 450A\ | | | | | LRR O, P, | | | rophytic vegel | |
| _ Sandy Mucky Mine | x (A 10) (IVI rai(S1) (I | RR O SI | | | e (+13) (I 17) (ML | LRR P, T, | (U) | | | ogy must be pr | |
| Sandy Gleyed Matr | | ((C), O) | | | | | 0A, 150B) | | ss disturbe | ed or problema | IIC. |
| | (, | | | | | | (MLRA 14 | | | | |
| Sandy Redox (S5) | | | Piedm | וסוו ויוסס | odiain Sc | | | | | | |
| Sandy Redox (S5) Stripped Matrix (S6 |) | | | | | | | | 153D) | | |
| Stripped Matrix (S6 Dark Surface (S7) (| LRR P, S, | T, U) | | | | | | A 149A, 153C, | 153D) | | |
| Stripped Matrix (S6 | LRR P, S, | | | | | | | | 153D) | NPs - | |
| Stripped Matrix (S6 Dark Surface (S7) (| LRR P, S, | T, U) | | | | | | | 153D) | V | |
| Stripped Matrix (S6 Dark Surface (S7) (estrictive Layer (if ot | LRR P, S, oserved): | ė. | | | | | | | | Yes | No |
| _ Stripped Matrix (S6 _ Dark Surface (S7) (estrictive Layer (if ob Type: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| _ Stripped Matrix (S6 _ Dark Surface (S7) (estrictive Layer (if ob Type: Depth (inches): | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| _ Stripped Matrix (S6 _ Dark Surface (S7) (estrictive Layer (if ob Type: Depth (inches): | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| _ Stripped Matrix (S6 _ Dark Surface (S7) (estrictive Layer (if ob Type: Depth (inches): | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| _ Stripped Matrix (S6 _ Dark Surface (S7) (strictive Layer (if ob Type: Depth (inches): | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| Stripped Matrix (S6 Dark Surface (S7) (strictive Layer (if ob Type: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| Stripped Matrix (S6 Dark Surface (S7) (strictive Layer (if ot Type: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| Stripped Matrix (S6 Dark Surface (S7) (strictive Layer (if ob Type: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| Stripped Matrix (S6 Dark Surface (S7) (strictive Layer (if ob Type: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| Stripped Matrix (S6 Dark Surface (S7) (strictive Layer (if ot Type: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| Stripped Matrix (S6 Dark Surface (S7) (strictive Layer (if ob Type: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| Stripped Matrix (S6 Dark Surface (S7) (strictive Layer (if ob Type: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| Stripped Matrix (S6 Dark Surface (S7) (strictive Layer (if ot Type: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| Stripped Matrix (S6 Dark Surface (S7) (strictive Layer (if ob Type: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| Stripped Matrix (S6 Dark Surface (S7) (strictive Layer (if ot Type: Depth (Inches): marks: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| _ Stripped Matrix (S6 _ Dark Surface (S7) (strictive Layer (if ob Type: Depth (Inches): marks: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | | No |
| _ Stripped Matrix (S6 _ Dark Surface (S7) (strictive Layer (if ob Type: Depth (Inches): marks: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | Yes | No |
| _ Stripped Matrix (S6 _ Dark Surface (S7) (strictive Layer (if ob Type: Depth (Inches): marks: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | | No |
| _ Stripped Matrix (S6 _ Dark Surface (S7) (strictive Layer (if ob Type: Depth (Inches): marks: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | | No |
| _ Stripped Matrix (S6 _ Dark Surface (S7) (estrictive Layer (if ob Type: Depth (inches): emarks: | LRR P, S, oserved): | ė. | | | | | | A 149A, 153C, | | | No |
| _ Stripped Matrix (S6 _ Dark Surface (S7) (strictive Layer (if ob Type: Depth (Inches): marks: | LRR P, S, oserved): | ė. | | | | | | Hydric Soll | | | No |
| Stripped Matrix (S6 Dark Surface (S7) (strictive Layer (if ot Type: Depth (Inches): marks: | LRR P, S, oserved): | ė. | | | | | | Hydric Soll | | | No |
| Stripped Matrix (S6, Dark Surface (S7) (strictive Layer (if ot Type: | LRR P, S, oserved): | ė. | | | | | | Hydric Soll | | | No |

| Date: 129-11 Project Site: Purple line WUS#: 34 |
|--|
| Observer(s) BG, HS |
| Stream Flow: Perennial: Intermittent Ephemeral |
| Gradient: 1 1/6 Classification: RYSB 2x |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) X Explain: Channelized - rip - rap in Stream |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line shelving sediment sorting sediment sorting scour multiple observed or predicted flow events sediment deposition abrupt change in plant community other (list): Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width 4,5 Depth B Avg. Water Depth 3" Has stream morphometry been altered? US Describe: |
| Habitat and Pollutants: Substrate (predominant type (s)): Stud NO-MO Habitat Complexity (characterize): 10W - 1 ack 0-1 Stuble habitat |
| Bank Erosion: Severe Moderate Minor Minor Describe: VNVIGETUTED MODERATE |
| Silt Deposition: Moderate |
| Pollutants (observation / potential sources): roud runott-1013 Of trush M channel |
| Stormwater Outfalls: |

| Federally Listed species Fish Spawn Areas |
|--|
| Other Environmentally-Sensitive Species Aquatic/Wildlife Diversity |
| Explain Findings: |
| |
| Development: Norm buffer w Churc-road Brunk |
| Riparian vegetation: Forest Shrubs Herbs |
| Dominant Species: Sycamore maple Sweet Sum, |
| black locust cutalpa |
| Riparian Buffer Width: 15 |
| Approximate % Shading by Woody Species: |
| Notes: |
| |
| |

| O WEILAND DETERMINATION DATA FORM | wi – Atlantic and Guir Coastal Plain Region |
|--|---|
| Project/Site: Yurle Live City/C | County: MINTAIMON Sampling Date: 12-9- |
| Applicant/Owner: MTA | Ustate: MD sampling Point: WTP 35 |
| Investigator(s): | on, Township, Range: |
| ()1- 1-1-1 | relief (concave, convex, none): NOW Slope (%): 1 |
| Subregion (LRR or MLRA): MLRA 149A Lat: | Long: |
| Soil Map Unit Name: Sour Urban and como ex. | OCC. Planded NWI classification: PFO)E |
| Are climatic / hydrologic conditions on the site typical for this time of year? You | |
| Are Vegetation, Soil, or Hydrology significantly disturb | |
| Are Vegetation, Soil, or Hydrology naturally problema | |
| The state of the s | |
| SUMMARY OF FINDINGS - Attach site map showing sam | ipling point locations, transects, important features, etc. |
| Hydrophytic Vegetation Present? Hydric Soil Present? Yes No | is the Sampled Area |
| Wetland Hydrology Present? Yes No | within a Wetland? Yes No |
| Remarks: | |
| AT = AREA ALTE | |
| a afficial and faction of an artist of a | |
| the second secon | |
| | |
| HYDROLOGY | 1 |
| Wetland Hydrology Indicators: | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is required; check all that apply) | Surface Soll Cracks (B6) |
| Surface Water (A1) Aquatic Fauna (B13) | Sparsely Vegetated Concave Surface (B8) |
| High Water Table (A2) Marl Deposits (B15) (LRR | R U) Drainage Patterns (B10) |
| Saturation (A3) Hydrogen Sulfide Odor (C | |
| Water Marks (B1) Oxidized Rhizospheres al | |
| Sediment Deposits (B2) Presence of Reduced Iron | |
| Drift Deposits (B3) Recent Iron Reduction in Algal Mat or Crust (B4) Thin Muck Surface (C7) | |
| Algal Mat or Crust (B4) Thin Muck Surface (C7) Iron Deposits (B5) Other (Explain in Remark: | Geomorphic Position (D2) |
| Inundation Visible on Aerial Imagery (B7) | (S) Shallow Aquitard (D3) FAC-Neutral Test (D5) |
| Water-Stained Leaves (B9) | Sphagnum moss (D8) (LRR T, U) |
| Field Observations: | springram moss (55) (214(1), 5) |
| Surface Water Present? Yes No Depth (inches): | <u> </u> |
| Water Table Present? Yes No Depth (inches): | |
| Saturation Present? Yes No Depth (inches): | Wetland Hydrology Present? Yes NoNo |
| (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, prev | visus increations) if evaluates |
| become recorded bata (stream gauge, monitoring well, aerial priotes, pre- | vious inspections), ii available. |
| Remarks: | |
| | |
| Floodplan wetland | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

| | | | | Sampling Point: |
|--|------------|----------------------|------------|--|
| ree Stratum (Plot size: | | Dominant Species? | | Dominance Test worksheet: |
| · Llatanus OCC lentulis | 25 | Species! | FACU | Number of Dominant Species That Are OBL, FACW, or FAC: (A) |
| Catalpa speciosa | 25 | Y | FAC | |
| 1 | | | 1 | Total Number of Dominant |
| | | | | Species Across All Strata: (B) |
| | | | - | Percent of Dominant Species |
| | - | (4.4 | | That Are OBL, FACW, or FAC: 100 (A/I |
| | -V | | 471.0 | Prevalence Index worksheet: |
| | | Se Calle III II II | | Total % Cover of: Multiply by: |
| | <u> </u> | = Total Co | | OBL species x 1 = |
| 50% of total cover: | | = l'otal Co | /er | FACW species x 2 = |
| | 20% of | total cover | 70 | FAC species x 3 = |
| apling/Shrub Stratum (Plot size:) HCON (PEGUNDO) | 15 | V | FAC | FACU species x 4 = |
| | 15 | 1/ | -17-0 | UPL species x 5 = |
| Salix nigra | 19 | -4- | FACW | (0.5) (0.0) (0.0) (0.0) (0.0) |
| | | | H =X | Column Totals: (A) (E |
| | | | | Prevalence index = B/A = |
| | | | | Hydrophytic Vegetation Indicators: |
| | | | | |
| | | | | 2 - Dominance Test is >50% |
| | | | | 3 - Prevalence Index is ≤3.0¹ |
| | 30 | = Total Co | er, | Problematic Hydrophytic Vegetation¹ (Explain) |
| 50% of total cover: | 20% of | total cover | :_6_ | Trobernate Trydrophytic Vegetation (Explain) |
| erb Stratum (Plot size:) | _ | | ar na fi | I be allowed as the salety with the salety win the salety with the salety with the salety with the salety with |
| Phalaris arundinaceu | 30 | Y | FACW | Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| Bookmann Cul marica | 5 | (III. Walan III. II | FACW | Definitions of Four Vegetation Strata: |
| Polygonum perfoliatum | | 1120 630 | ZAC | Deminions of Four Vegetation Strata. |
| | C 11 1=1 1 | 17 The * 110 | LEON LEVEL | Tree - Woody plants, excluding vines, 3 in. (7.6 cm) |
| ar party and gray and | | T. Line bea | 21. | more in diameter at breast height (DBH), regardless of helght. |
| of the parent of the parent | i, ilea t | or vigy fille | 95041111 | a cer dodg it me |
| | - | 162 | FIRE LUMB | Sapling/Shrub - Woody plants, excluding vines, less |
| | | LU DU | 1 | than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| Service and the service and th | | | | Herb - All herbaceous (non-woody) plants, regardles |
| The second secon | | | | of size, and woody plants less than 3.28 ft tail. |
|) | EI Y | | | Woody vine - All woody vines greater than 3.28 ft in |
| • | | | - | helght. |
| | | | 1000 100 | THE RESERVE OF THE PARTY OF THE |
| | 40 | = Total Co | /er | |
| 50% of total cover: | 20% of | total cover | : | 'operation of the second |
| oody Vine Stratum (Piot size:) | - 1 | | gratery, | state on a barry of a state of the |
| | | | | |
| | | | | T-C |
| | | | | |
| | | | | |
| | · | | | |
| | | | | Hydrophytic |
| | | = Total Co | | Vegetation Present? Yes No |
| 50% of total cover: | | total cover | : | rieseitt fes / NO |
| | w). | | | |
| emarks: (If observed, list morphological adaptations belo | | | | |
| emarks: (If observed, list morphological adaptations belo | | | | |
| emarks: (If observed, list morphological adaptations belo | | | | |
| emarks: (If observed, list morphological adaptations beid | | | | |
| emarks: (If observed, list morphological adaptations beid | | | | |

SOIL Sampling Point: Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Matrix Redox Features Color (moist) Color (mois **Texture** ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Solls³: Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) ___ 1 cm Muck (A9) (LRR O) Histlc Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) ___ 2 cm Muck (A10) (LRR S) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A,B) Hydrogen Suifide (A4) Loamy Gleyed Matrix (F2) Pledmont Floodplain Soils (F19) (LRR P, S, T) Stratified Layers (A5) Depleted Matrix (F3) __ Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) (MLRA 153B) 5 cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F7) Red Parent Material (TF2) __ Muck Presence (A8) (LRR U) _ Redox Depressions (F8) Very Shallow Dark Surface (TF12) __ 1 cm Muck (A9) (LRR P, T) Mari (F10) (LRR U) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Depleted Ochric (F11) (MLRA 151) ___ Thick Dark Surface (A12) iron-Manganese Masses (F12) (LRR O, P, T) ³Indicators of hydrophytic vegetation and ___ Coast Prairie Redox (A16) (MLRA 150A) ___ Umbric Surface (F13) (LRR P, T, U) wetland hydrology must be present, ___ Sandy Mucky Mineral (S1) (LRR O, S) _ Deita Ochric (F17) (MLRA 151) unless disturbed or problematic. Sandy Gleyed Matrix (S4) _ Reduced Vertic (F18) (MLRA 150A, 150B) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) ___ Stripped Matrix (S6) _ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soli Present? Remarks:

Stream Features Field Sheet Field Sheet

| Date: Project Site: Purple Live WUS#: 36 |
|--|
| Observer(s) BF, HS |
| Stream Flow: Perennial: Intermittent \(\sum \) Ephemeral Gradient: Classification: RUSBI |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) X Explain: Structure |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line sediment sorting sediment sorting secour multiple observed or predicted flow events sediment deposition abrupt change in plant community other (list): Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width 3,5 Depth 19 Avg. Water Depth |
| Has stream morphometry been altered? <u>Y2S</u> Describe: |
| Habitat and Pollutants: Substrate (predominant type (s)): Habitat Complexity (characterize): |
| Bank Erosion: SevereModerate Minor |
| Describe: |
| Silt Deposition: |
| Pollutants (observation / potential sources): KOW WNOTT |
| Stormwater Outfalls: \(\sum \) |

| Biological Habitat For (check all that apply): Federally Listed species | Novel on Fish Spawn Areas |
|--|--|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | Taneo |
| | 50. 15 m |
| Riparian Zone: Development: Swwb5 | maintained grass |
| Riparian vegetation: Forest | _ Shrubs Herbs |
| Dominant Species: bluck will | Shrubs X Herbs X |
| | to the second second second |
| Riparian Buffer Width: | nel Mas uneck an Incl. App. V |
| Approximate % Shading by Woody Species: | 50% |
| Notes: | ago, no y got Canadas and Con- |
| | |
| the feet of the section of the secti | The second secon |

W37

| O gollgride | | O / |
|--|---|--|
| Project/Site: Projective | City/County: | Sampling Date: 12/5/1/ |
| Applicant/Owner: TA | JAGUILLA DES CHIESTA COMMUNICACIONES | State: MD Sampling Point: WTP 37-1 |
| Investigator(s): 66, H5 | Section, Town | |
| Landform (hillslope, terrace, etc.): Floods | N. F. 15/100 F. 1 | incave, convex, none): Concave Slope (%): |
| Subregion (LRR or MLRA): MLRA - 149 | A Lat: | |
| Soil Map Unit Name: Sue-Urban | F/13/7-14 | Long: Datum: Datum: |
| | | |
| Are climatic / hydrologic conditions on the site ty | | No (If no, explain in Remarks.) |
| Are Vegetation, Soil, or Hydrolog Are Vegetation, Soil, or Hydrolog | | Are "Normal Circumstances" present? Yes No (If needed, explain any answers in Remarks.) |
| SUMMARY OF FINDINGS - Attach | site map showing sampling | point locations, transects, important features, etc. |
| Hydrophytic Vegetation Present? Yes Hydric Soll Present? Yes Wetland Hydrology Present? Yes Remarks: | No lis the s | Sampled Area a Wetland? Yes No |
| and military if | | |
| and beginning as the first of the second | | |
| W-5 1744 | | |
| INCREASE COV | | |
| HYDROLOGY | uorii | |
| Wetland Hydrology Indicators: | 1 197 | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is required | | Surface Soil Cracks (B6) |
| Surface Water (A1) High Water Table (A2) Saturation (A3) | Aquatic Fauna (B13) Marl Deposits (B15) (LRR U) | Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) |
| Water Marks (B1) | Hydrogen Sulfide Odor (C1) | Moss Trim Lines (B16) |
| Sediment Deposits (B2) | Oxidized Rhizospheres along Livi Presence of Reduced Iron (C4) | ng Rools (C3) Dry-Season Water Table (C2) Crayfish Burrows (C8) |
| Drift Deposits (B3) | Recent Iron Reduction in Tilled So | |
| Algal Mat or Crust (B4) | Thin Muck Surface (C7) | Geomorphic Position (D2) |
| Iron Deposits (B5) | Other (Explain in Remarks) | Shallow Aquitard (D3) |
| Inundation Visible on Aerial Imagery (B7) | | FAC-Neutral Test (D5) |
| Water-Stained Leaves (B9) | | Sphagnum moss (D8) (LRR T, U) |
| Field Observations: | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | |
| Surface Water Present? Yes No | Depth (inches): | |
| Water Table Present? Yes No | | |
| Saturation Present? Yes X No (includes capillary fringe) | Depth (inches): | Wetland Hydrology Present? Yes No |
| Describe Recorded Data (stream gauge, moni | toring well, aerial photos, previous ins | pections), if available: |
| | | |
| Remarks: | | |
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| UT | | |
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| | Absolute Dominant Indica | |
|--|--------------------------------|---|
| ree Stratum (Plot size:) | | That Are OBL, FACW, or FAC: (A) |
| | Make I was the same | Total Number of Dominant Species Across All Strata: (B) |
| The second section of the section of the section of the second section of the section of t | | Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A) |
| | | Prevalence Index worksheet: |
| | | Total % Cover of: Multiply by: |
| | = Total Cover | OBL species x 1 = |
| | 20% of total cover: | FACW species x 2 = |
| apling/Shrub Stratum (Plot size:) | | FAC species x 3 = |
| · | | FACU species x 4 = |
| | | UPL species x 5 = |
| | | Column Totals: (A) (§ |
| | | Developes Index - DA - |
| | I Pa | |
| | | |
| | | 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test Is >50% |
| | | 1 |
| | = Total Cover | — 3 - Prevalence Index is ≤3.0¹ |
| 50% of total cover: | 20% of total cover: | Problematic Hydrophytic Vegetation ¹ (Explain) |
| Pragnites australis | | Indicators of hydric soll and wetland hydrology must be present, unless disturbed or problematic. |
| Solidago Sp. | 2 1/4 | |
| Junus effusus | 5 FAC | tex is policied. (EAs quilting in |
| Rubus alleghemensis | | I I ree - woody plants, excluding vines, 3 in (7.6 cm) |
| (2) y restriction of the second | UT 7) Cli - e2ri L'alliur; 29; | Sapling/Shrub - Woody plants, excluding vines, les than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| tery limited worth a | 10-10-10-1 | Herb - All herbaceous (non-woody) plants, regardle: |
| D | <u></u> | of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in |
| 1 2. | | height. |
| | 102 = Total Cover | |
| 50% of total cover: | 20% of total cover: | (SET) TREETENED |
| /oody Vine Stratum (Plot size:) | AND AND AND | the first transfer that the |
| Karene esta | Ø. | |
| Lonicera japonica | 10 Y FA | |
| | | |
| | | |
| | | Hydrophytic |
| | = Total Cover | Vegetation |
| 50% of total cover: | 20% of total cover: | Present? Yes No No |
| emarks: (If observed, list morphological adaptations be | low). | |
| | | |
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| | | |

| Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | |
|--|--|--|--|--|--|--|--|
| Depth Matrix Redox Features | | | | | | | |
| (inches) Color (moist) % Color (moist) % Type¹ Loc² | Texture Remarks | | | | | | |
| 0-4 2.543/1 100 | - FSCI high % of organics | | | | | | |
| 4-12+2.54412-80 104R516 20 C m | +'s/, | | | | | | |
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| | | | | | | | |
| ¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. | 7 | | | | | | |
| Hydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) | 2Location: PL=Pore Lining, M=Matrix. | | | | | | |
| 19 | Indicators for Problematic Hydric Soils ³ : | | | | | | |
| _ : 3 : 1 : 1 : 1 : 1 : 1 | , | | | | | | |
| Histic Epipedon (A2) Histic Epipedon (A2) Lyamy Mucky Mineral (F1) (LRR O) | 2 cm Muck (A10) (LRR S) | | | | | | |
| Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) | Reduced Vertic (F18) (outside MLRA 150A,B) Piedmont Floodplain Soils (F19) (LRR P, S, T) | | | | | | |
| Stratified Layers (A5) Depleted Matrix (F3) | Anomalous Bright Loamy Solls (F20) | | | | | | |
| Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) | (MLRA 153B) | | | | | | |
| 5 cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F7) | Red Parent Material (TF2) | | | | | | |
| Muck Presence (A8) (LRR U) Redox Depressions (F8) | Very Shallow Dark Surface (TF12) | | | | | | |
| 1 cm Muck (A9) (LRR P, T) Marl (F10) (LRR U) | Other (Explain in Remarks) | | | | | | |
| Depleted Below Dark Surface (A11) Depleted Ochric (F11) (MLRA 151) | | | | | | | |
| Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, | | | | | | | |
| Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) | wetland hydrology must be present, | | | | | | |
| Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A, 150I | unless disturbed or problematic. | | | | | | |
| Sandy Redox (S5) — Reduced Vertic (F15) (MERA 150A, 150A | | | | | | | |
| Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (ML | | | | | | | |
| Dark Surface (S7) (LRR P, S, T, U) | | | | | | | |
| | | | | | | | |
| Restrictive Layer (if observed): | | | | | | | |
| Restrictive Layer (if observed): Type: | | | | | | | |
| | Hydric Soil Present? Yes No | | | | | | |
| Туре: | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |
| Type: Depth (Inches): | Hydric Soil Present? Yes No | | | | | | |

Stream Features Option And Action of Committee Stream Field Sheet Option And Action of Committee Stream And Action of Comm

| Date: 7-31-12 Project Site: Pumple Live WUS#: 038 |
|--|
| Observer(s) B6, AT |
| Stream Flow: Perennial: Intermittent Ephemeral Gradient: 4 1 1/2 Classification: R+5644 |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) X Explain: |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line sediment sorting sediment sorting sediment sorting sediment deposition multiple observed or predicted flow events abrupt change in plant community other (list): Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width Depth Avg. Water Depth Describe : |
| Habitat and Pollutants: Substrate (predominant type (s)): Habitat Complexity (characterize): Sensul New 19 19 19 19 19 19 19 19 19 19 19 19 19 |
| Bank Erosion. Severe Moderate Minor |
| Describe: |
| Silt Deposition: Woderate |
| Pollutants (observation / potential sources): |
| Stormwater Outfalls: N D |

| Biological Habitat For (check all that apply): Federally Listed species | Fish Spawn Areas |
|--|--|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | Fig. 1 Let 14 |
| Riparian Zone: Development: Down Ro | af R) - Rendentral |
| Dominant Species: Cutalpa Che | Shrubs & Herbs & W |
| Riparian Buffer Width: 351 | The man track Bound and the contract of the co |
| Approximate % Shading by Woody Species: | 95% |
| Notes: | and the second second |
| No. of the state o | City soles |
| The state of the s | |
| | |

| Date: 718-12 Project Site: Purple Linewus #: 039 |
|--|
| Observer(s) 60-MAT |
| Stream Flow: Perennial: Intermittent Ephemeral Gradient: Classification: A 45B4 |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) X Explain: Channel Ted almy roud |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line shelving sediment sorting sediment sorting scour multiple observed or predicted flow events sediment deposition abrupt change in plant community other (list): Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width Depth 2 Avg. Water Depth 1" |
| Has stream morphometry been altered? <u>US</u> Describe: |
| Habitat and Pollutants: Substrate (predominant type (s)): Substrate (predominant type (s)): |
| Habitat Complexity (characterize): 10W- Shallon flows |
| Bank Erosion: Severe Moderate Minor |
| Describe: endine alme Sound Wall-undermining |
| Silt Deposition: |
| Pollutants (observation / potential sources): 10 nd 1110ff, trush |
| Stormwater Outfalls: |

| | For (check all that appalled a | oly): | Fish Sp | oawn Areas_ | |
|-------------------------|--|----------|-----------------------|---------------|--|
| Other Environmentally | y-Sensitive Species | 1 7 7 | Aquatic/Wildli | fe Diversity_ | N42- E181 |
| Explain Findi | ngs: | 3 | | To a | and other |
| Riparian Zone: | ent: O Bunk | - FMin | Road | (R) bu | nk Fores |
| Riparian vegetation | on: Forest | Shrub | os | Herbs_ | Katto turner 1 |
| Dominant Speci | es: Elm, av | NOW-M | bord, re | d mi | uple. |
| PM | SIM NU | Tapune | se ho | rensu | ale_ |
| ا Riparian Buffer Wi | dth: | 1 | 24, 144 | deficie de de | daysal Hadharia |
| Approximate % Sh | ading by Woody Specie | es: 95% | 1 | 100 | DAGGEL |
| Notes: | en bodis en e de Sarren y | E = 1707 | the true and a second | Y 1000 0 | 7.1 |
| | i sette for | 11.27 | | = 10/4 | |
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| and the second | | | | - dia-A | grad total |
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Stream Features

| Date: 8-15-67 Project Site: Purple Line WUS#: WUS 048 |
|---|
| Observer(s) BG, HS |
| Stream Flow: Perennial: Intermittent Ephemeral |
| Gradient: 1% Classification: R45B2 4x |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: upper portions were straightened + rip-rapped |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line sediment sorting sediment sorting scour multiple observed or predicted flow events sediment deposition abrupt change in plant community other (list): Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width Depth Avg. Water Depth Has stream morphometry been altered? Describe : See above |
| Habitat and Pollutants: Substrate (predominant type (s)): rip-rap upstream sand-gravel downstream Habitat Complexity (characterize): low, Shallow flows, few riffles |
| Bank Erosion: Severe Moderate Minor |
| Describe: many unegetated, failing banks in upper portions Silt Deposition: moderate |
| Pollutants (observation / potential sources): none apparent |
| Stormwater Outfalls: 1 (US) |

| | ensitive Species | A | quatic/Wildlife Div | ersity | it glatest |
|---|-----------------------|-----------------------|---------------------|-----------------|------------|
| Explain Findings | : | | | 1 1/2 10 | N/A |
| iparian Zone: Development: | mid-success | ional forest | Tr-Effendi | 2 == | notes l |
| Riparian vegetation: Dominant Species: | Forest / Sweetgum, | Shrubs_ red maple, | | terbs laurel | |
| 1VY Riparian Buffer Width: | :_>100 ft-bo | oth banks | April, ye 1999 | lis voeds) = (1 | (encorts |
| | ng by Woody Species | 0.000 | | 2.5% | |
| Notes: | hydron | V- | - Angly In 1990 and | | |
| | mail - and s. I. | | | | |
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Stream Features

| Date: 4-21-11 Project Site: Note the wus #: 057 |
|--|
| Observer(s) BUHS |
| Stream Flow: Perennial: Intermittent Ephemeral |
| Gradient: Classification: RTSB4 & Manual Classification |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: VIP-10p channel Between pps |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line shelving sediment sorting sediment sorting scour multiple observed or predicted flow events sediment deposition abrupt change in plant community other (list): Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width 45 Depth 4 Avg. Water Depth 6 Has stream morphometry been altered? Describe: |
| Habitat and Pollutants: Substrate (predominant type (s)): |
| Habitat Complexity (characterize): |
| Bank Erosion: Severe Moderate Minor |
| Describe: |
| Silt Deposition: MMWW |
| Pollutants (observation / potential sources): |
| Stormwater Outfalls: VVV |

| ological Habitat For (che Federally List | | | sh Spawn Areas |
|---|-------------------|-----------------|--|
| er Environmentally-Sensiti | ve Species | Aquatic/\ | Vildlife Diversity |
| Explain Findings: | | | Br D. France |
| | | | an flow; |
| arian Zone: Development: | | reducthern | etimosul formere |
| Riparian vegetation: | Forest | Shrubs | Herbs X |
| Dominant Species: | 11465 | Tebum namp' | in a market |
| | | | |
| parian Buffer Width: | Ø | yk, | on all the service all that apol |
| —— proximate % Shading b | v Woodv Species: | Ø | All Sell I |
| | mento monament | nusdent no base | erquir militar sea audit |
| | militara metudias | | g weath, |
| | | | |
| | | Depth | |
| | | | |
| | | | |
| | a North or | | itet ond Polluterrer exercia (predominant type (s)) |
| | ···· | | |
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Stream Features

| Date: 4-21-11 Project Site: Kuple live | wus#: <u>38</u> |
|--|---|
| Observer(s) BG1+S | agnitivité de 3 |
| Stream Flow: Perennial: Intermittent Epheme | ral X |
| Gradient: Classificati | on: |
| Channel Characteristics: Natural Artificial (man-made) | Manipulated (man-altere <u>d)</u> |
| Explain: ephemera Condition | The think of the last of |
| Channel Has (check all that apply): Bed and Banks | anan Builter Width |
| OHWM clear, natural line impressed on the bank changes in character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition water staining the presence of litter and debris Discontinuous OHWM (explain): | destruction of terrestrial vegetation the presence of wrack line sediment sorting scour multiple observed or predicted flow events abrupt change in plant community other (list): |
| | ц |
| Morphology: Avg. Channel Width | Avg. Water Depth |
| Has stream morphometry been altered? 42 | Describe: 517957070000 |
| Habitat and Pollutants: Substrate (predominant type (s)): | |
| Habitat Complexity (characterize): | |
| e e | a |
| Bank Erosion: Severe Modera | te Minor |
| Describe: | |
| Silt Deposition: | ii. |
| Pollutants (observation / potential sources): | ad runoff |
| | |
| Stormwater Outfalls: | ***** |

| Biological | | (check all that apply): Listed species | uerutani, is tao Pipa | Fish Spawn Are | eas |
|-------------------|---------------------|---|--------------------------|---------------------|---|
| Other Enviro | onmentally-Se | nsitive Species | Aqua | tic/Wildlife Divers | sityesc |
| Expl | lain Findings: | | | 971 | To Replace D |
| | | | | | Strettin Flate |
| Riparian Z | one: evelopment: | West of vous | - Foreg | + food | I awn |
| Riparian | vegetation: | Forest | Shrubs | <u>├</u> He | rbs X vel 3 (ampant) |
| Domina | ant Species: | Box elder, | Silver | maple | e, Japanese |
| / | knot | veed | | g sector | h was a mistorial |
| Riparian E | Buffer Width: | 750' | | a gree harlf He | Channel Has (smack |
| Approxima | ate % Shadir | g by Woody Species: | 60% | | A STANDARD N |
| Notes: | uncl | ear wheth | er Strew | im 151 | socienative |
| | at o | be or flow | you se | th und | e voud- |
| | MARIAN | pe or flow | nywh | erl. | and the first |
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WSa

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

| 0 | 11/2 |
|--|--|
| Project/Site: KNY UC LIVE | City/County: MM from Sampling Date: 4/2/11 |
| Applicant/Owner: MTA | State: MD Sampling Point: WTP 59 |
| Investigator(s): 65, HS | Section, Township, Range: |
| Landform (hillslope, terrace, etc.): Seep | Local relief (concave, convex, none): (oncov)e. Slope (%): |
| Subregion (LRR or MLRA): MLRA 148 Lat: | Long: Datum: |
| Soil Map Unit Name: Codorus + Hatboro soils, - | |
| Are climatic / hydrologic conditions on the site typical for this time o | |
| Are Vegetation, Soil, or Hydrology significa | |
| Are Vegetation, Soil, or Hydrology naturally | |
| | |
| SUMMARY OF FINDINGS - Attach site map snow | ing sampling point locations, transects, important features, etc. |
| Hydrophytic Vegetation Present? Yes No | is the Sampled Area |
| Hydric Soil Present? Yes No | — within a Wetland? Yes X No |
| Wetland Hydrology Present? Yes No | |
| Remarks: | |
| and without upon the frequency | |
| number out to a substitute of | |
| предпече докраб га | |
| and the second second | |
| HYDROLOGY CONTROL OF THE PROPERTY OF THE PROPE | ALCOHOLD TO THE TOTAL THE TOTAL TO THE TOTAL THE TOTAL TO THE TOTAL TH |
| Wetland Hydrology indicators: | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is required; check all that app | oly) Surface Soil Cracks (B6) |
| Surface Water (A1) True Aquati | c Plants (B14) Sparsely Vegetated Concave Surface (B8) |
| High Water Table (A2) Hydrogen S | Sulfide Odor (C1) |
| Saturation (A3) Oxidized RI | nizospheres on Living Roots (C3) Moss Trim Lines (B16) |
| Water Marks (B1) Presence o | f Reduced Iron (C4) Dry-Season Water Table (C2) |
| Sediment Deposits (B2) Recent Iron | Reduction in Tilled Soils (C6) Crayfish Burrows (C8) |
| ✓ Drift Deposits (B3) Thin Muck | Surface (C7) Saturation Visible on Aerial Imagery (C9) |
| 2.3 | ain in Remarks) Stunted or Stressed Plants (D1) |
| iron Deposits (B5) | Geomorphic Position (D2) |
| Inundation Visible on Aerial Imagery (B7) | Shallow Aquitard (D3) |
| Water-Stained Leaves (B9) | Microtopographic Relief (D4) |
| Aquatic Fauna (B13) | FAC-Neutral Test (D5) |
| Field Observations: | |
| Surface Water Present? Yes _ \(\sum_ \) No Depth (inc | hes): D- |
| Water Table Present? Yes No Depth (inc | |
| Saturation Present? Yes X No Depth (inc | |
| (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial p | |
| Describe Necorded Data (Stream gauge, monitoring well, aerial p | notos, previous irispections), ii avaliable. |
| Remarks: | |
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| ALL LAST Leaving Committee | Absolute | Dominant | | Dominance Test worksheet: |
|--|------------|----------------|----------------|--|
| 1. Fraxinus pennsulvanicum | 65 | Species? | FACW | Number of Dominant Species That Are OBL, FACW, or FAC: (A) |
| 2. Vopilus dest bides | | | | Total Number of Dominant Species Across All Strata: (B) |
| 4 | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: |
| 6 | 1011 | 377.477 | 11.510 | Prevalence index worksheet: |
| 7 | 120 | | To the second | Total % Cover of: Multiply by: |
| 8. A Househ Shaper of the Country | นิก | = Total Cov | | OBL species x 1 = |
| Sapling/Shrub Stratum (Plot size: | 0 | | er | FACW species x 2 = |
| 1. Liquidamber Styrugflux | 2 | la barrasia | FAC | FAC species x 3 = |
| 2. HOW YULLINGO | 40 | Y | FAC | FACU species x 4 = |
| 3. Losa Multiflora | 40 | 1 | FACU | UPL species x 5 = |
| 4. | MAN B UM | Shirt S | | Column Totals: (A) (B) |
| 5 | | | | Prevalence index = B/A = |
| 7 | | | | Hydrophytic Vegetation indicators: |
| 8. | | | | |
| 9 | | | | 2 - Dominance Test is >50% |
| 10 | | | | 3 - Prevalence Index is ≤3.0¹ |
| 11. 12. 12. 12. 12. 12. 12. 12. 12. 12. | <u> 42</u> | = Total Cov | er | 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) |
| 1. Rununculus flaria | Un | Y | NI | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 2. TUNGUS EFFUSUS | 5 | 11-11-11-11 | FACIN | Fortuna Tento trus at Francia participation In 1955. |
| 3. Geum canadense | = | 11 101 /5 10 | FACU | ¹ Indicators of hydric soil and wetland hydrology must |
| 4. Thiaspi arrense | 8 | d secondary | 17 | be present, unless disturbed or problematic. |
| 5. Phalaris arundinacen | 10 | and beginns | FACW | Definitions of Four Vegetation Strata: |
| 6. IST WOOD HATERS FFC | n neat | et William | est in a large | Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or |
| 7. O July hard the market of extractings: | | pan eur | True! | more in diameter at breast height (DBH), regardless of height. |
| 8. I I I They meet the following the | | (1.19) (F. 12) | -21,01 | |
| 9. | | | | Sapiling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| 10. | | | | () () () () () () () () () () |
| 11. | | | | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. |
| 12 | 1000 | | | |
| Woody Vine Stratum (Plot size:) | _08_ | = Total Cov | er | Woody vine – All woody vines greater than 3.28 ft in height. |
| 1. Jos codendron radicans | _5_ | _ Y | FAC | |
| 2. | | - | | |
| 3 | - 100 M | 10 1 | No. | and the section of the control of the section of |
| 4 | | | | Hydrophytic |
| 6. | | | | Vegetation Present? Yes No |
| | 5 | = Total Cov | | Tresent: Tes NO |
| Remarks: (include photo numbers here or on a separate s | | | | |
| Training. (Institute priote framesis field of off a separate s | 11001.) | | | |
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| 1 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. 1 Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Community Commu | lematic Hydric Solis³: a) (MLRA 147) adox (A16) (48) plaiń Soils (F19) |
|--|--|
| Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Varic Soil Indicators: Indicators for Problem | lematic Hydric Solis³: a) (MLRA 147) adox (A16) (48) plaiń Soils (F19) |
| Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Histosol (A1) Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Loamy Gleyed Matrix (F2) Depleted Matrix (F2) Piedmont Flood (MLRA 136, 1 Redox Dark Surface (F6) Piedmont Flood (MLRA 136, 1 Redox Dark Surface (F6) Piedmont Flood (MLRA 136, 1 Redox Depressions (F8) Other (Explain in Iron-Manganese Masses (F12) (LRR N, MLRA 136) | lematic Hydric Solis³: a) (MLRA 147) adox (A16) (48) plaiń Soils (F19) |
| Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Indicators for Problem of Pr | lematic Hydric Solis³: a) (MLRA 147) adox (A16) (48) plaiń Soils (F19) |
| Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10 Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Mistosol (A1) Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Loamy Gleyed Matrix (F2) Depleted Matrix (F2) Piedmont Flood (MLRA 136, 1 Redox Dark Surface (F6) Red Parent Matrix (F3) Depleted Dark Surface (F7) Piedmont Flood (MLRA 136, 1 Redox Depressions (F8) Other (Explain in Iron-Manganese Masses (F12) (LRR N, MLRA 136) | lematic Hydric Solis³: a) (MLRA 147) adox (A16) (48) plaiń Soils (F19) |
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| Histosol (A1) Histosol (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10 Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Histosol (A1) Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Loamy Gleyed Matrix (F2) Depleted Matrix (F2) Piedmont Flood (MLRA 136, 1 Redox Dark Surface (F6) Red Parent Matrix (F3) Depleted Dark Surface (F7) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) | lematic Hydric Solis³: a) (MLRA 147) adox (A16) (48) plaiń Soils (F19) |
| Histosol (A1) Histosol (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) Coast Prairie Reflecting Matrix (F2) Depleted Matrix (F3) Community Micro (A10) Depleted Dark Surface (F6) Depleted Dark Surface (F7) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) MLRA 136) Indicators for Problem indicators for Problem in Micro Prob | lematic Hydric Solis³: a) (MLRA 147) adox (A16) (48) plaiń Soils (F19) |
| Histosol (A1) Histosol (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) Coast Prairie Reflecting Matrix (F2) Depleted Matrix (F3) Community Micro (A10) Endow Dark Surface (A11) Depleted Dark Surface (F6) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) MLRA 136) Indicators for Problem indicators for Problem in Micro Problem in Micr | lematic Hydric Solis³: a) (MLRA 147) adox (A16) (48) plaiń Soils (F19) |
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| Histosol (A1) Histosol (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) Coast Prairie Reflecting Matrix (F2) Depleted Matrix (F3) Community Micro (A10) Endow Dark Surface (A11) Depleted Dark Surface (F6) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) MLRA 136) Indicators for Problem indicators for Problem in Micro Problem in Micr | lematic Hydric Solis³: a) (MLRA 147) adox (A16) (48) plaiń Soils (F19) |
| Histosol (A1) Histosol (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Histosol (A1) Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Loamy Gleyed Matrix (F2) Depleted Matrix (F2) Piedmont Flood (MLRA 136, 148) (MLRA 147, 148) Piedmont Flood (MLRA 136, 148) Other (Explain in International Internati | lematic Hydric Solis³: ı) (MLRA 147) ıdox (A16) I48) plaiń Soils (F19) |
| Histosol (A1) Histosol (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) Coast Prairie Reflecting Matrix (F2) Depleted Matrix (F3) Community Micro (A10) Endow Dark Surface (A11) Depleted Dark Surface (F6) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) MLRA 136) Indicators for Problem indicators for Problem in Micro Problem in Micr | lematic Hydric Solis³: ı) (MLRA 147) ıdox (A16) I48) plaiń Soils (F19) |
| Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) — Polyvalue Below Surface (S8) (MLRA 147, 148) — Thin Dark Surface (S9) (MLRA 147, 148) — Coast Prairie Re (MLRA 147, 148) — Piedmont Floody — Piedmont Floody — Red Parent Mate Very Shallow Dark Surface (F6) — Redox Depressions (F8) — Other (Explain in Iron-Manganese Masses (F12) (LRR N, MLRA 136) | edox (A16) I 48) plaiń Soils (F19) |
| Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) — Polyvalue Below Surface (S8) (MLRA 147, 148) — Thin Dark Surface (S9) (MLRA 147, 148) — Depleted Matrix (F2) — Piedmont Flood (MLRA 136, 1) — Redox Dark Surface (F6) — Red Parent Matrix (F2) — Very Shallow Dark Surface (A12) — Redox Depressions (F8) — Other (Explain in Iron-Manganese Masses (F12) (LRR N, MLRA 136) | edox (A16) I 48) plaiń Soils (F19) |
| Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) MLRA 136) Piedmont Flood (MLRA 136, 12) Redox Dark Surface (F6) Red Parent Mate Very Shallow Dark Surface (F7) Other (Explain in MLRA 136) | plain Soils (F19) |
| Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Depleted Matrix (F3) Redox Dark Surface (F6) Red Parent Mate Very Shallow Da Other (Explain in Iron-Manganese Masses (F12) (LRR N, MLRA 136) | |
| 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Red Parent Mate Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dar Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain ir Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) MLRA 136) | 1471 |
| Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (A12) Redox Depressions (F8) Other (Explain in Iron-Manganese Masses (F12) (LRR N, MLRA 147, 148) MLRA 136) | |
| Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) MLRA 136) | |
| Sandy Mucky Minerai (S1) (LRR N, iron-Manganese Masses (F12) (LRR N, MLRA 147, 148) MLRA 136) | |
| MLRA 147, 148) MLRA 136) | i Remarks) |
| | |
| | phytic vegetation and |
| | gy must be present, |
| Stripped Matrix (S6) unless disturbed | |
| strictive Layer (if observed): | |
| Туре: | |
| Depth (inches): Hydric Soil Present? Y | es <u> </u> |
| marks: | |
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WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Project/Site: Applicant/Owner: Investigator(s): Section, Township, Range: Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Concave Subregion (LRR or MLRA): (If no, explain in Remarks.) or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes ____, or Hydrology _____ naturally problematic? _, Soil _ (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Is the Sampled Area Hydric Soil Present? Nο within a Wetland? Wetland Hydrology Present? Remarks: **HYDROLOGY** Wetiand Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ✓ Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) ★ Saturation (A3) Oxidized Rhizospheres on Living Roots (C3) Moss Trim Lines (B16) Water Marks (B1) Presence of Reduced Iron (C4) Dry-Season Water Table (C2) Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6) Crayfish Burrows (C8) Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1) Iron Deposits (B5) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3) Water-Stained Leaves (B9) Microtopographic Relief (D4) Aquatic Fauna (B13) FAC-Neutral Test (D5) Field Observations: Surface Water Present? Water Table Present? Saturation Present? Depth (inches): Wetland Hydrology Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point:

Sampling Point:

| Proceedings of the Company of the Co | Absolute | Dominant | | Dominance Test worksheet: |
|--|---|----------------|---|--|
| Tree Stratum (Plot, size:) | % Cover 50 | Species? | | Number of Dominant Species U |
| 1. Liquidambar styraciflua | | <u> </u> | FAC | That Are OBL, FACW, or FAC: (A) |
| 2. Fraxmus pennsylvamoum | 70 | Trans | FACW | Total Number of Dominant |
| 3. | 100 | il lating | | Species Across Ali Strata: (B) |
| 4 | | | | The state of the second second |
| 5. | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: |
| 6 | 27 Ura | | - | markie obc, racw, orrac (A/B) |
| 7. | | 2 780 | the tri oral | Prevalence index worksheet: |
| 8 CE CH C NO NO NO CH MONTH LENGTH | (0) | A TUST | 100 | Total % Cover of: Multiply by: |
| 1 201-01-201-01-01-01-01-01-01-01-01-01-01-01-01-0 | 120 | = Total Cov | 80. | OBL species x 1 = |
| Sapling/Shrub Stratum (Plot size:) | 100 | = Total Col | /er | FACW species 70 x 2 = 140 |
| 1. Liquidumbar Sturaciflua | 30 | My man | FAC | FAC species 93 x 3 = 279 |
| 2. Liquetrum sinense | 30 | 4 | FACU | FACU species 93 x4 = 332 |
| 3 | <u> </u> | | Thu | |
| Tax | 1 1000 b/d | 13 | | UPL species x 5 = 751 |
| 4 | | | | Column Totals: <u>246</u> (A) <u>751</u> (B) |
| 5 | | | | Prevalence Index = B/A = 3.05 particular |
| 6 | | | | |
| 7 | | | | Hydrophytic Vegetation Indicators: |
| 8 | | | | 1 - Rapid Test for Hydrophytic Vegetation |
| 9 | | | | 2 - Dominance Test is >50% |
| 10. | - 140 | | 4-1 | 3 - Prevalence index is ≤3.01 |
| | 60 | = Total Cov | /OT | 4 - Morphological Adaptations¹ (Provide supporting |
| Herb Stratum (Plot size:) | 00 | - 10(2) 00(| | data in Remarks or on a separate sheet) |
| 1. Allium Canadense | 25 | Υ | FACU | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 2. LONICERE INDOMER | 5 | (1-0. x-a) | FAC | 11 - 12 to other 2 |
| 3. Mosa multiflora | 10 | Y | FAUL | ¹ Indicators of hydric soil and wetland hydrology must |
| 4. Prunus Serotna | - | | FACIL | be present, unless disturbed or problematic. |
| | | - W- I | TACH | Definitions of Four Vegetation Strata: |
| 5. (flum canadense | <u> </u> | | PAUG | Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or |
| 6. | | | Te usula | more in diameter at breast height (DBH), regardless of |
| /· | | | N 1000 | height. |
| 8 | | Market Comment | | Sapling/Shrub – Woody plants, excluding vines, less |
| 9 | 19 | | | than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| 10. | | | | |
| 11. | | | | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. |
| 12 | | | | of size, and woody plants less than 3.26 it tall. |
| 3 3 | 50 | = Total Cov | | Woody vine - All woody vines greater than 3.28 ft in |
| Woody Vine Stratum (Plot size:) | a | | | height. |
| 1. Toxicodendron vadición Sr | 8 | 4 | FAC | |
| 2. PAYTHENOGISS QUINQUEDO | 14.85 | V | FACIL | of the state of th |
| 3. | 100 | 1 | 1710 | To activity: |
| 4 | 101111111111111111111111111111111111111 | 19 11.1 2 | 111111111111111111111111111111111111111 | and State of the s |
| **- | | | | Hydrophytic |
| 5 | | | | Vegetation |
| 6 | <u> </u> | | | Present? Yes _/ No |
| 3 | 16 | = Total Cov | /er | 2. |
| Remarks: (Include photo numbers here or on a separate s | sheet.) | | | |
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Sampling Point: WP60-

| Profile Desc | cription: (Describe t | o the de | pth needed to docum | nent the i | ndicator or confi | m the abs | sence of indicate | ors.) | |
|---------------|--|---------------|----------------------|------------|-------------------------------------|-----------|------------------------------|----------------|-------------|
| Depth | Matrix | | Redo | x Features | 3 | _ | | | |
| (inches) | Color (moist) | <u>%</u> | Color (moist) | | Type ¹ Loc ² | Textu | , | Remarks | |
| 0-6 | 104R411 | 95 | 754R416 | 5 | CWI | 510 | | | |
| <u> (et</u> | 7.5YR41V | 2, | disturbed | 11/1 | nuterial | <u> </u> | Man | ganose | Concretiv |
| | 104R416 | \mathcal{L} | | • | | | | J | |
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| Hydric Soil I | | etion, RM | I=Reduced Matrix, MS | S=Masked | Sand Grains. | Locatio | n: PL=Pore Linir | ng, M=Matrix. | |
| - | | | D 11 0 1 | (07) | | | indicators for Pi | | |
| Histosol | (A1) pipedon (A2) | | Dark Surface | | e (S8) (MLRA 147 | | 2 cm Muck (/ | | |
| Black His | | | | | e (58) (MLRA 14) (MLRA 147, 148) | | Coast Prairie (MLRA 14 | | |
| | n Sulfide (A4) | | Loamy Gleye | | | | | odplain Soils | (F19) |
| | Layers (A5) | | Depleted Mat | rix (F3) | _, | | (MLRA 13 | | (1.10) |
| | ck (A10) (LRR N) | | Redox Dark S | Surface (F | • | | | Material (TF2) | |
| | Below Dark Surface | (A11) | Depleted Dar | | | | | / Dark Surface | |
| | irk Surface (A12) lucky Mineral (S1) (L | DD N | Redox Depre | | • | | Other (Expla | in in Remarks |) |
| | 147, 148) | KK N, | iron-wangane | | s (F12) (LRR N, | | | | |
| | leyed Matrix (S4) | | | • | MLRA 136, 122) | | ³ Indicators of h | vdronhytic ver | etation and |
| | edox (S5) | | | | oils (F19) (MLRA 1 | 148) | | ology must be | |
| | Matrix (S6) | | | | | | | bed or probler | , |
| | ayer (if observed): | | | | | | , | | |
| Type: | | | | | | | | | 1 |
| | :hes): | | <u> </u> | _ | | Hydric | Soii Present? | Yes 🗶 | . No |
| Remarks: | | | | | | , | | | |
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| | IS STATEMENT | than | | 81129 | March Mark | | |
|--|--|---------------------------|---------------|---|---------------------------------|-------------------|-------------|
| Stream Flow: Perennial: | Intermittent | Ephe | meral <u></u> | | | | |
| Gradient: | | Classific | cation: | 70 | 7 | | entoS (ICI) |
| | Artificial (mar | | Ma | nipulated | d (man-a | alter <u>ed)</u> | avs/1 |
| Explain: <u>Clu</u> | 15 from | pipe | und | W | mo | 410 | supervoy 6 |
| Channel Has (chec | | | | | | | |
| change shelving shelving shelving shelving shelving sedim sedim water the pro- | natural line impressed or ges In character of soil ing ation matted down, bent, tter disturbed or washed thent deposition staining resence of litter and debrin nuous OHWM (explain) | or absent away is | thre sedi | ruction of presence ment sorti ur tiple obser upt change er (list): | of wrack li ng ved or pre | ine dicted flo | w events |
| Morphology: Avg. Channel W Has stream m | idth orphometry been al | Depth tered? <i>ND</i> | De | Avg. \scribe: | Water D | epth | none |
| Habitat and Polluta Substrate (predon Habitat Complexit | | rine | wil | 10 | | | |
| Bank Erosion: | Severe | Mod | erate | | N | linor | X |
| Describe: | | | | | | | |
| Silt Deposition: | | | | | | | |
| Pollutants (obse | rvation / potential so | ources): | road | Mu | off : | hi | gh |
| Stormwater Outf | | | | | | | |

| Biological Habitat For. | (check all that app | ly): | Soleta | | |
|--------------------------------|--------------------------------|---------------|-----------------------|-----------------|---------------------|
| Federally | Listed species | <u>n 31 -</u> | Fish Spawn A | reas | :araCl |
| Other Environmentally-Serie | sitive Species | | Aquatic/Wildlife Dive | | needO _{F1} |
| Explain Findings: | | | | AP more OX or | Stream |
| e as | | etel slift | lar notinger | de III) de | 14 |
| Riparian Zone: Development: | Road - In | udustrial | limpex | -narm | I huffer |
| Riparian vegetation: | Forest | Shrubs | H | erbs | B/I |
| Dominant Species: | ROMU | An. P | m. Sile | / maple | |
| has | Asvello | | Aphysic methol: | a Kharty yah lo | nn arto |
| Riparian Buffer Width: | 20' M | eithe si | le | La Ro | - |
| Approximate % Shadin | g by Woody Species | s: _ 75°/ | Olo beat grammanic | MEG HAVE | _ |
| Notes: | the to be seen that a property | | 0.0.15 | Section 20 | |
| | nioan | Ina v | Properties | 137.16761794 | _ |
| the second and the | s van da eindun | | awatani wantenda | (4) - 10 | - 16 |
| W DOMESTI | | | | | |
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| Date: 4-24-11 Project Site: frequence WUS#: 63 |
|--|
| Observer(s) Bb, HSI additional and the second and t |
| Stream Flow: Perennial: Intermittent X Ephemeral Gradient: Classification: X4583 4x |
| Channel Characteristics: |
| Natural Artificial (man-made) Manipulated (man-altered) × |
| Explain: MD-rap placed with channel |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation thre presence of wrack line shelving sediment sorting sediment sorting scour multiple observed or predicted flow events sediment deposition abrupt change in plant community other (Ilst): Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width Depth Depth Avg. Water Depth Lo.4" Has stream morphometry been altered? No Describe: |
| Habitat and Pollutants: Substrate (predominant type (s)): Habitat Complexity (characterize): |
| Bank Erosion: Severe Moderate Minor |
| Describe: |
| Silt Deposition: \(\lambda \l |
| Pollutants (observation / potential sources): |
| |
| Stormwater Outfalls: Now |

| | el company of the state of the | | Fish Spawn Area | |
|-------------------------------|---|---|------------------------|--|
| Other Environmentally-Ser | isitive Species | Ac | uatic/Wildlife Diversi | |
| Explain Findings | | | | Wwo Harris |
| <u>-</u> | | Breme" 1" | Instrumetel | Peronnial |
| Riparian Zone: Development | :_ none | ches to asp | e centra | 1 41.01 151 |
| Riparian vegetation: | Forest | Shrubs | Herb | os of a tell all |
| Dominant Species: | LITU, L | IST, PIVI | TORA | White J |
| | | | Tylenia (SHTILL) | Land Stank (Surrout |
| Riparian Buffer Width | 7 50' | | | |
| | | 12-21 | · | |
| Approximate % Shadi | ng by Woody Specie | es: /00% | States are a like that | gallA ⁶ |
| Notes: | in Nos III sudi | | | |
| Cat and adding | number | 7—36 ——————————————————————————————————— | | THE REAL PROPERTY. |
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| Date: 4-24-11 Project Site: Purple Line WUS#: 64 |
|--|
| Observer(s) BG HS and Dividual Bank and the second |
| Stream Flow: Perennial: Intermittent Ephemeral Ephemeral |
| Gradient: Classification: X45B3/4x |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) X |
| Explain: rip-rap placed Within Channel |
| Channel Has (check all that apply): Bed and Banks OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation thre presence of wrack line sediment sorting sediment sorting sediment sorting sediment sorting sediment deposition abrupt change in plant community other (list): destruction of terrestrial vegetation thre presence of wrack line sediment sorting sediment sorting sediment sorting sediment sorting sediment deposition abrupt change in plant community other (list): destruction of terrestrial vegetation thre presence of wrack line sediment sorting sedimen |
| Habitat and Pollutants: Substrate (predominant type (s)): |
| Habitat Complexity (characterize): |
| Bank Erosion: Severe Moderate Minor |
| Describe: |
| Silt Deposition: MMOV |
| Pollutants (observation / potential sources): |
| Stormwater Outfalls: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ |

| Federally Listed species | Fish Spawn Areas |
|--|--|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | M ⁱ ssatt me |
| I and the second of | and trought - mail insulation of the many |
| Riparian Zone: Development: | note of the later to the later |
| Riparian vegetation: Forest | Shrubs Herbs |
| Dominant Species: TORA | V. LIST |
| | untiles fast features will be accomplish |
| Riparian Buffer Width: > 50 / v | n R boule; Road on left |
| Approximate % Shading by Woody Specie | s: 50°6 |
| Notes: | HIND TO THE WORLD BE AND THE WORLD BE AN |
| nicope. | message on overteborrommentalists. |
| and the state of t | Con addition of the Control of the C |
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WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Applicant/Owner: Section, Township, Range: Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): __(ONOANO Datum: (If no, explain in Remarks.) Are climatic / hydrologic conditions on the site typical for this time of year? Yes Are "Normal Circumstances" present? Yes Are Vegetation _____, Soil _____, or Hydrology _ significantly disturbed? __, Soil ___ __, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? No is the Sampled Area Hydric Soil Present? within a Wetland? Wetland Hydrology Present? Remarks: **HYDROLOGY** Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Saturation (A3) Oxidized Rhizospheres on Living Roots (C3) Moss Trim Lines (B16) Water Marks (B1) Presence of Reduced Iron (C4) Dry-Season Water Table (C2) Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6) Crayfish Burrows (C8) Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1) Iron Deposits (B5) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3) Water-Stained Leaves (B9) Microtopographic Relief (D4) Aquatic Fauna (B13) FAC-Neutral Test (D5) Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:

| Lid Physican and a second light of | Absolute | Dominant | | Dominance Test worksheet: |
|---|------------------------|------------|-------------|--|
| Tree Stratum (Plot size:) | | Species? | | Number of Dominant Species |
| 1. A Cer Neemal | 40 | | FAC | That Are OBL, FACW, or FAC: (A) |
| 2. Fratimes Dennsylvanica | 00 | - 14-VI | FACW | Total Number of Dominant |
| 3. VIMUS americana | 25 | | FACW | Species Across All Strata: (B) |
| 4. | | 1 | 1 | |
| 5. | 1 | | 72 | Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B) |
| | 1200 | - | 200 | That Are OBL, FACW, or FAC: (A/B) |
| 6. | Marine Marine | 1000 | V - 11/1/2 | Prevalence Index worksheet: |
| 7 | | | | Total % Cover of: Multiply by: |
| 8. | 1.5 | | 100 | |
| | 125 | = Total Co | ver | OBL species x 1 = |
| Sapling/Shrub Stratum (Plot size:) | 10 | V | | FACW species x 2 = |
| 1. Lonicera totanca | 20 | THE PERSON | FACU | FAC species x 3 = |
| 2 | | | | FACU species x 4 = |
| 3 | | | | UPL species x 5 = |
| | HOLVIN I | 1.46 | " | Column Totals: (A) (B) |
| | | | | (4) |
| 5 | | | | Prevalence Index = B/A = |
| 6 | | | | Hydrophytic Vegetation Indicators: |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | ✓ 2 - Dominance Test is >50% |
| 10. | | | | 3 - Prevalence Index is ≤3.0¹ |
| н | 50 | = Total Co | | 4 - Morphological Adaptations¹ (Provide supporting |
| Herb Stratum (Plot size:) | | - 10tal Co | ver | data in Remarks or on a separate sheet) |
| 1. Ranunculus ficaria | 20 | Y | NI | Problematic Hydrophytic Vegetation¹ (Explain) |
| 1. Nantaria | 70 | | | # Stort initials recognition in the resemble Street |
| 2. อาการเสนาริงการคราย เก็บ พลับ แบบพลริ | | | H SASURA W | ¹ Indicators of hydric soil and wetland hydrology must |
| 3. | | | 9 H Hat W | be present, unless disturbed or problematic. |
| 4. <u>'6 And FE' 1878</u> | 01 | 47, 45, 69 | <u> </u> | Definitions of Four Vegetation Strata: |
| 5. <u>(6.) 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 </u> | 320 | " 52 Hz | A TACTO | A STATE OF THE STA |
| | -Box 105 th | | | Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or |
| - 1, 1 | | 277 | CTA IN THE | more in diameter at breast height (DBH), regardless of height. |
| THE REPUBLIC NO. 18.49 | | L Arthur L | 7625 101 1 | neight. |
| 8 | | | | Sapling/Shrub – Woody plants, excluding vines, less |
| 9. | | | | than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| 10 | | | | Herb – All herbaceous (non-woody) plants, regardless |
| 11. | | | | of size, and woody plants less than 3.28 ft tall. |
| 12. | | | | The second secon |
| | 20 | = Total Co | ver | Woody vine - All woody vines greater than 3.28 ft in |
| Woody Vine Stratum (Plot size:) | | | | height. |
| 1 | | | | D 2 10 101 110 201 110 |
| 2enenderroggetony through | P | | 0 HAIL I TO | d M eV maker anything |
| | | | | |
| 3. | THE RESERVE | 8 | 47-1-1-1-1 | programme participation of the |
| 4 | | | | Hydrophytic |
| 5 | | | | Vegetation \checkmark |
| 6 | | | | Present? Yes No |
| | | = Total Co | ver | |
| Remarks: (Include photo numbers here or on a separate s | sheet.) | | | |
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Sampling Point: WP65 1

| Profile Description: (Describe to the dept | h needed to document the ind | licator or confirm | the absence of inc | dicators.) |
|---|--|------------------------------------|--------------------------------|---|
| Depth Matrix | Redox Features | - 1 - 2 | | |
| (inches) Color (moist) % | | Type ¹ Loc ² | <u>Texture</u> | Remarks |
| D12+ 104K41200 | 7,54R416 20 | C M | SICI | |
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| ¹ Type: C=Concentration, D=Depletion, RM= | Reduced Matrix, MS=Masked S | and Grains. | ² Location: PL=Pore | e Lining, M=Matrix. |
| Hydric Soll Indicators: | | | | for Problematic Hydric Soils ³ : |
| Histosol (A1) | Dark Surface (S7) | | 2 cm M | uck (A10) (MLRA 147) |
| Histic Epipedon (A2) | Polyvalue Below Surface | | 148) Coast F | Prairie Redox (A16) |
| Black Histic (A3) | Thin Dark Surface (S9) (| • | | RA 147, 148) |
| Hydrogen Sulfide (A4) | Loamy Gleyed Matrix (F2 | 2) | | ont Floodplain Soils (F19) |
| Stratified Layers (A5) | Depleted Matrix (F3) | | | RA 136, 147) |
| 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) | Redox Dark Surface (F6)Depleted Dark Surface (F6) | | | rent Material (TF2) |
| Thick Dark Surface (A12) | Redox Depressions (F8) | .,, | | nallow Dark Surface (TF12) Explain in Remarks) |
| Sandy Mucky Mineral (S1) (LRR N, | Iron-Manganese Masses | (F12) (LRR N. | Other (| Explain in Remarks) |
| MLRA 147, 148) | MLRA 136) | (/ (, | | |
| Sandy Gleyed Matrix (S4) | Umbric Surface (F13) (MI | LRA 136, 122) | ³ Indicators | s of hydrophytic vegetation and |
| Sandy Redox (S5) | Piedmont Floodplain Soil | | | I hydrology must be present, |
| Stripped Matrix (S6) | | | | disturbed or problematic. |
| Restrictive Layer (if observed): | | | | |
| Туре: | | | | |
| Depth (inches): | <u></u> | | Hydric Soil Prese | ent? Yes No |
| Remarks: | | | ·l | |
| unable to touch | I Laile Il | | \ - a | ((|
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| Field Sheet |
|---|
| Date: 12-9-11 Project Site: Purple Line WUS#: 66 |
| Observer(s) BG, H3 |
| Stream Flow: Perennial: Intermittent Ephemeral Gradient: 40/0 Classification: R205//2 |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) Explain: |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation the presence of wrack line sediment sorting sediment sorting scour multiple observed or predicted flow events sediment deposition abrupt change in plant community other (list): Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width Depth Avg. Water Depth . |
| Has stream morphometry been altered? <u>Nes</u> Describe: <u>Near</u> Culvert, rip-rap has been placed win |
| Habitat and Pollutants: Substrate (predominant type (s)): Substrate (predominant type (s)): |
| Habitat Complexity (characterize): Wolleatt - deep Pools Niffle vun tomplex Bank Erosion: Severe Moderate Minor X |
| Describe: |
| Silt Deposition: M INOV |
| Pollutants (observation / potential sources): CSX track runoff |
| Stormwater Outfalls: |

| Biological Habitat For (check all that apply): Federally Listed species | Fish Spawn Areas |
|--|--|
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity |
| Explain Findings: | - 7 |
| | Sopran ignor |
| Riparian Zone: Development: Apart Control | uslexes |
| Riparian vegetation: Forest | Shrubs Herbs Herbs |
| Dominant Species: Green ush, | tulis poplar red maple |
| Bush honey such | |
| Riparian Buffer Width: 20' | indigue of a form than the confirm |
| Approximate % Shading by Woody Species: | 80% |
| Notes: | and the second section in the second section is section in the second section in the second section is section in the second section in the second section is section in the second section in the second section is section in the second section in the second section is section in the second section in the second section is section in the second section in the section is section in the section in the section in the section is section in the section in the section is section in the section in the section in the section is section in the section in the section in the section is section in the section in the section in the section in the section is section in the s |
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| WETLAND DETERMINATION DATA FOR | M – Atlantic and Gulf Coastal Plain Region 67 |
|--|--|
| Project/Site: Pu/Dle Lines City/C | county: Sampling Date: 1-26-7 |
| Applicant/Owner: MTA | State: MD Sampling Point: WTP-67 |
| Investigator(s): BU AT Section | on, Township, Range: |
| | relief (concave, convex, none): Ca VL _ Slope (%): |
| Subregion (LRR or MLRA): MLRA 148 Lat: | No. |
| | Christiana Downer Whan POW W PEW IF |
| | |
| Are climatic / hydrologic conditions on the site typical for this time of year? Y | |
| Are Vegetation, Soil, or Hydrology significantly disturb | |
| Are Vegetation, Soil, or Hydrology naturally problems | atic? (If needed, explain any answers in Remarks.) |
| SUMMARY OF FINDINGS - Attach site map showing sam | pling point locations, transects, important features, etc. |
| | in the state of th |
| Hydrophytic Vegetation Present? Yes No | is the Sampled Area |
| Hydric Soll Present? Yes / No | within a Wetland? Yes No |
| Wetland Hydrology Present? Yes No | |
| Remarks: | |
| The state of the s | |
| series of the series and series are series and series and series and series are series and series are series and series and series are series are series and series are series are series are series and series are series a | |
| the section to | |
| HYDROLOGY | |
| | |
| Wetland Hydrology Indicators: | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is required; check all that apply) | Surface Soil Cracks (B6) |
| Surface Water (A1) Aqualic Fauna (B13) High Water Table (A2) Marl Deposits (B15) (LRF | Sparsely Vegetated Concave Surface (B8) |
| High Water Table (A2) Marl Deposits (B15) (LRF Saturation (A3) Hydrogen Sulfide Odor (C | |
| Water Marks (B1) Water Marks (B1) Water Marks (B1) Water Marks (B1) | |
| Sediment Deposits (B2) Presence of Reduced Iron | |
| Drift Deposits (B3) Recent Iron Reduction in | |
| Algal Mat or Crust (B4) Thin Muck Surface (C7) | Geomorphic Position (D2) |
| Iron Deposits (B5) Other (Explain in Remark | |
| Inundation Visible on Aerial Imagery (B7) | FAC-Neutral Test (D5) |
| Water-Stained Leaves (B9) | Sphagnum moss (D8) (LRR T, U) |
| Field Observations: | |
| Surface Water Present? Yes X No Depth (inches): | TENOWN. |
| Water Table Present? Yes X No Depth (inches): | |
| Saturation Present? Yes) No Depth (inches): C | Wetland Hydrology Present? Yes No |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre | vious inspections), if available: |
| | |
| Remarks: | |
| (1.500 0.11 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | |
| Sum pmd w/ Pen fin | el. |
| | 0 |
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| y · | 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| | 8 |
| w | |
| 1 g | |
| Đ | |

| | Absolute | Dominant Ind | icator | Dominance Test worksheet: | | day. |
|--|----------|--------------------|---------------|--|----------------------------|--------|
| ree Stratum (Plot size:) | % Cover | Species? S | tatus | Number of Dominant Species That Are OBL, FACW, or FAC: | 2 | (A) |
| 1 0 0 | | V ₂ = 3 | | Total Number of Dominant Species Across All Strata: | 2 | (B) |
| | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: | 100 | _ (A/I |
| Suithean Parts with grade stable | | Walle In | - 1 | Prevalence Index worksheet: Total % Cover of: | Multiply by: | B) HC |
| Two are a second and the second and | | | | OBL species x 1 | | |
| | | Total Cover | | | | |
| 50% of total cover: | 20% of | total cover: | | FACW species x 2 FAC species x 3 | | W 74 |
| apling/Shrub Stratum (Plot size:) | | | _ | FACU species x 4 | | |
| | | | | | | |
| | | | | UPL species x 5 | | |
| | | | | Column Totals: (A) | CATHER III C | (! |
| | | | | Prevalence index = B/A = _ | | |
| | | | | Hydrophytic Vegetation indicate | | |
| | | | | | | |
| | 0 | | | 1 - Rapid Test for Hydrophytic | vegetation | |
| | | | | 2 - Dominance Test Is >50% | | |
| | | Total Cover | | 3 - Prevalence Index is ≤3.01 | 23.1 | |
| 50% of total cover: | | | | Problematic Hydrophytic Vege | etation' (Expla | |
| The state of the s | 20% 01 | total cover: | | PHC 32 TD | | |
| Verblua Nocha to | 3 | | 4an | ¹ Indicators of hydric soll and wetla be present, unless disturbed or pre- | nd hydrology oblematic. | mus |
| Ludwinia alternitolia | 35 | YFF | ten | Definitions of Four Vegetation S | trata: | , the |
| Scirpus cyperinus | 5 | FA | CW | -at vil 1 | fine walking | 10. |
| Junious Veffusus | 50 | Y FP | TOW | Tree – Woody plants, excluding vi more in diameter at breast height | | |
| - CONTRACTOR SHA | | | 7 h-10 | height. | (DDII), regare | 11000 |
| Althorated by a constraint delivery | AL INV | 4 1-12 | J. 11. 1. | Souling/Shout Monday last | | istu |
| | | 11/1/11/11 | | Sapling/Shrub - Woody plants, e than 3 in. DBH and greater than 3 | 28 ff (1 m) ta | s, les |
| 784 (204 A 182 - 20 - 18 - 20 - 18 - 20 - 18 - 20 - 18 - 20 - 20 - 20 - 20 - 20 - 20 - 20 - 2 | | right-in letter | Francis G | and o m. Dorr and grouter than o | 2011 (1111) 12 | |
| | | | | Herb - All herbaceous (non-wood | | ardle |
| 1900 9 91 3 9 9 9 | | | | of size, and woody plants less tha | n 3.28 ft tall. | |
| | | | | Woody vine - All woody vines gro | eater than 3.2 | 8 ft i |
| • | | | | height. | - ejgkil | 11 |
| | | 7.01 920 | 22 9 | at the same of the | | |
| No. of the second second | 40 | Total Cover | w Ann | | 20.70 | |
| 50% of total cover: 46.5 | 20% of | total cover: _/ | 9 | 110 | | |
| oody Vine Stratum (Plot size:) | 100 | 100 500 | THE PAIN | the printing of the same of the | | |
| , | | | | | | |
| | | | | | | |
| | | | ' | | | |
| | | . " | _ | | | |
| | | | | | | |
| | | | | Hydrophytic | | |
| | : | Total Cover | | Vegetation | | |
| 50% of total cover: | 20% of | tolal cover: | | Present? Yes | No | |
| emarks: (If observed, list morphological adaptations below | | | | L | | |
| | .,, | | | | | |
| | | | | | | |
| | | | | | | |

Ob.

Sampling Point: WTP 67-1

| Depth | Matrix | | | x Features | | | | |
|---------------------------------------|---|-------------|--|------------|-------------------|----------|----------------|---|
| inches) | Color (moist) | <u>%</u> | Color (moist) | | Type ¹ | _Loc2 | <u>Texture</u> | Remarks |
| 0-10 | 101K3/2 | 95 | 75/184/16 | 5 | | PL | | |
| 10-14+ | 104R3/2 | 90 | 7.5YR5/6 | 10 | C | M | fsc | |
| | | | | | | | | - |
| | | | | | | | | |
| | | | | | | | - | |
| | | | | | | | | <u> </u> |
| | | | | | | | | |
| | | | | | | | | |
| S | | | | | | | | |
| | | | Reduced Matrix, MS LRRs, unless other | | | ains. | | : PL=Pore Lining, M=Matrix. |
| | | able to all | | | | | | s for Problematic Hydric Soils ³ : |
| Histosol (| • | | Polyvalue Bei | | | | | Muck (A9) (LRR O) |
| | pedon (A2) | | Thin Dark Sur | | | | | Muck (A10) (LRR S) |
| _ Black His | | | Loamy Mucky | | | (O) | | ced Vertic (F18) (outside MLRA 150A |
| | Sulfide (A4) Layers (A5) | | Loamy Gleye | | F2) | | | nont Floodplain Soils (F19) (LRR P, S, |
| _ | Bodies (A6) (LRR P | TIN | Depleted Mat | | ·C\ | | | nalous Bright Loamy Solls (F20) |
| | ky Mineral (A7) (LF | | Redox Dark S | | | | | LRA 153B) |
| | sence (A8) (LRR U | | Depleted Dari Redox Depre | | • | | | Parent Material (TF2) |
| | k (A9) (LRR P, T) | ' | Marl (F10) (L | • | 2) | | | Shallow Dark Surface (TF12) |
| | Below Dark Surface | e (A11) | Depleted Och | • | MIRA 1 | 51) | Other | r (Explain in Remarks) |
| | k Surface (A12) | - (, | Iron-Mangane | | | | P. T) = 3Ind | icators of hydrophytic vegetation and |
| | irie Redox (A16) (R | /ILRA 150A |) Umbric Surfa | | | | | etland hydrology must be present, |
| | icky Mineral (S1) (L | | Delta Ochric | | | , -, | | less disturbed or problematic. |
| | eyed Matrix (S4) | | Reduced Ver | | | OA. 150E | 3) | most distalbed of problematic. |
| _ Sandy Re | dox (S5) | | Piedmont Flo | | | | | |
| _ Stripped I | Matrix (S6) | | | | | | | |
| | | | Anomaious B | rignt Loan | ny Soils (| F20) (ML | RA 149A, 153 | C, 153D) |
| _ Dark Surf | ace (S7) (LRR P, S | S, T, U) | Anomalous B | right Loan | ny Soils (| F20) (ML | RA 149A, 153 | C, 153D) |
| | ace (S7) (LRR P, S ayer (if observed): | | Allohialous B | right Loan | ny Solls (| F20) (ML | RA 149A, 153 | C, 153D) |
| | | | Anomalous B | right Loan | ny Solls (| F20) (ML | RA 149A, 153 | C, 153D) |
| estrictive La Type: | | | Allomaious B | right Loan | ny Soils (| F20) (ML | | <u> </u> |
| estrictive La Type: | ayer (if observed): | | Allomaious B | right Loan | ny Soils (| F20) (ML | | <u> </u> |
| Type: Depth (incl | ayer (if observed): | | Allomaious B | right Loan | ny Solls (| F20) (ML | | <u> </u> |
| Type: Depth (incl | ayer (if observed): | | Allomaious B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| estrictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Solls (| F20) (ML | | <u> </u> |
| estrictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Soils (| F20) (ML | | <u> </u> |
| estrictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Soils (| F20) (ML | | <u> </u> |
| estrictive La Type: Depth (inch | ayer (if observed): | | Allomaious B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| estrictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| estrictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| estrictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| strictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| estrictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| strictive La Type: Depth (incl | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| strictive La Type: Depth (incl | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| strictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| estrictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| strictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| estrictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| estrictive La Type: Depth (inch | ayer (if observed): | | Aliomalous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| estrictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| estrictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| Type: Depth (incl | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| estrictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| Type: Depth (incl | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |
| estrictive La Type: Depth (inch | ayer (if observed): | | Allomatous B | right Loan | ny Solis (| F20) (ML | | <u> </u> |

Stream Features Field Sheet

| Field Sheet |
|---|
| Date: 3-13-2012 Project Site: Purple I'me WUS#: 68 Flags WUS68-01-714 |
| Observer(s) A. Tatone, O. Rodgers |
| Stream Flow: Perennial: Intermittent Ephemeral |
| Gradient: 3-52 Classification: R45B sand/gravel |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) X |
| Explain: Both banks have as mosing in places, lots of pipes, & a juster a bottom |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation thre presence of wrack line shelving sediment sorting sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community other (list): the presence of litter and debris |
| Discontinuous OHWM (explain): Morphology: |
| Avg. Channel Width Depth Avg. Water Depth |
| Has stream morphometry been altered? Yes Describe: Kiser e bottom |
| Habitat and Pollutants: Substrate (predominant type (s)): Sand grave |
| Habitat Complexity (characterize): Very low low flashy flow |
| Bank Erosion: Severe Moderate Minor |
| Describe: |
| Silt Deposition: |
| Pollutants (observation) / potential sources): pipe with continuous that , |
| white precipilate forming, terrible ador |
| Stormwater Outfalls: 3 |

| WEILAND DETERMINATION DATA FOR | M – Atlantic and Gulf Coastal Plain Region |
|--|--|
| Project/Site: Puple Line City/C | County: College Park/PG Sampling Date: 3/13/12 |
| Applicant/Owner: MTA | State: Sampling Point: WTP-69 |
| Investigator(s): DR AT MN Secti | on, Township, Range: |
| Landform (hillslope, terrace, etc.): 5/10/10w 5ware Local | reliei (concave, convex, none): Slope (%): |
| Subregion (LRR or MLRA): MIRA-149a Lat: | Long: Datum: |
| Soil Map Unit Name: Codons > Hatboro 50ils, to | |
| Are climatic / hydrologic conditions on the site typical for this time of year? | |
| Are Vegetation, Soil, or Hydrology significantly distur | |
| Are Vegetation, Soil, or Hydrology naturally problem | |
| | |
| SUMMARY OF FINDINGS – Attach site map showing san | npling point locations, transects, important features, etc. |
| Hydrophytic Vegetation Present? Hydric Soil Present? Welland Hydrology Present? Yes No | Is the Sampled Area within a Wetland? Yes No |
| Remarks: | waterd |
| Vegetation routinely moved, ruts in | Dellard |
| Number of the state of the stat | - P |
| | |
| HYDROLOGY | |
| Wetland Hydrology Indicators: | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is required; check all that apply) | Surface Soll Cracks (B6) |
| Surface Water (A1) Aquatic Fauna (B13) | Sparsely Vegetated Concave Surface (B8) |
| High Water Table (A2) Marl Deposits (B15) (LR | |
| Saturation (A3) Hydrogen Sulfide Odor (| |
| Water Marks (B1) Oxidized Rhizospheres a | |
| ✓ Sediment Deposits (B2) Presence of Reduced Iro | on (C4) Crayfish Burrows (C8) |
| Drift Deposits (B3) Recent Iron Reduction in | n Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) |
| Algal Mat or Crust (B4) Thin Muck Surface (C7) | Geomorphic Position (D2) |
| Iron Deposits (B5) Other (Explain in Remar | ks) Shallow Aquitard (D3) |
| Inundation Visible on Aerial Imagery (B7) | FAC-Neutral Test (D5) |
| Water-Stained Leaves (B9) | Sphagnum moss (D8) (LRR T, U) |
| Field Observations: | |
| Surface Water Present? Yes No Depth (inches): | |
| Water Table Present? Yes No Depth (inches): | |
| Saturation Present? Yes No Depth (inches): | Wetland Hydrology Present? Yes No |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro- | evious inspections), if available: |
| | |
| Remarks: | |
| receives runoff from parking lot, | which collects over tight soils |
| Vertaining! = | |
| The same of the sa | HIGH BUTTER AND AND AND ADDRESS OF THE PARTY |
| 1 | |
| · · · · · · · · · · · · · · · · · · · | |
| | Annual Comment of the Second o |
| | Section 1997 |
| | |
| | |

| ree Stralum (Plot size:) | Absolute Dominant Indicator % Cover Species? Status | Dominance Test worksheet: |
|---|---|--|
| · | 76 Cover Species? Status | Number of Dominant Species That Are OBL, FACW, or FAC:(A) |
| | | Total Number of Dominant |
| | | Species Across All Strata: (B) |
| | | 1001 10 100 pt 100 pt 110 pt 1 |
| | | Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B |
| | | That is a ball in the second of the second o |
| ediatore con a | | Prevalence Index worksheet: |
| | SUPER PROPERTY OF STREET | Total % Cover of: Multiply by: |
| e – pomo niž nivetinga – na tra | = Total Cover | OBL species x 1 = |
| | 20% of total cover: | FACW species x 2 = |
| apling/Shrub Stratum (Plot size:) | 2070 07 total 00701. | FAC species x 3 = |
| | | FACU species x 4 = |
| | | UPL species x 5 = |
| | For see millioners | Column Totals: (A) (B |
| | | |
| | | |
| | | Hydrophytic Vegetation Indicators: |
| | | |
| | | |
| | | |
| | = Total Cover | Problematic Hydrophytic Vegetation¹ (Explain) |
| 50% of total cover: | 20% of total cover: | |
| erb Stratum (Plot size:) | | |
| | | |
| HARMS crossable of above to the st | | Definitions of Four Vegetation Strata: |
| Shown Fried Supergrafts | | Tree - Woody plants, excluding vines, 3 in. (7.6 cm) |
| contributed at the consistence of the | | more in diameter at breast height (DBH), regardless |
| | 3, 2 2 6 6 7 7 | height. |
| expectation is a visit to the second of the | PRACTICAL STREET | Sapling/Shrub - Woody plants, excluding vines, less |
| 2. 2.00 to 11. 00 to 12. | | than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| 7.0 Days - 12 | R-Mank day- | - Herb - All herbaceous (non-woody) plants, regardles |
| -0 | | |
| D | | - Woody vine - All woody vines greater than 3.28 ft in |
| 1 | | helght. |
| 2 | | - A Hanne 204 I |
| | = Total Cover | |
| 50% of total cover: | 20% of total cover: | Sept of the second seco |
| /oody Vine Stratum (Plot size:) | Forest file of passers gradely and the | A STATE OF THE PROPERTY OF THE PARTY OF THE |
| | | |
| | | - |
| | | - t |
| | 1 9 0 0 E MOT | - |
| | | - \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ |
| | | Hydrophytic Whown |
| | = Total Cover | Vegetation Present? Yes No |
| 50% of total cover: | 20% of total cover: | _ [4 |
| Remarks: (If observed, list morphological adaptations b | elow). | |
| | | |
| | | |
| regetation not identif | iable due to n | rowing |
| vegetation | | |
| | | |

Sampling Point: WTP-69

| | | | | i di comini | n the absence of In | uitatui 5. j |
|---------------------------|--|----------------------|---------------------|--------------|--|--|
| Depth | Matrix | Redo | ox Features | | | |
| (inches) | Color (moist) % | Color (moist) | | Loc² | Texture | Remarks |
| 1 0-9 1 | 0483/2 90 | 7.5484/6 | <u> 10 C</u> | M | <u> 510 </u> | |
| 4-6 | D. 545/6 | | 61 | | C | |
| 16-12+1 | 04R 5/6 | | | | 15 | |
| | | | | | | |
| | | | | | | |
| | | | | | 124 | |
| i | | - | | | | |
| | | | | | | |
| ¹ Type: C=Cond | entration, D=Depletion, Ri | M=Reduced Matrix. M | S=Masked Sand G | reins | ² I ocation: PI =I | Pore Lining, M=Matrix. |
| Hydric Soll ind | lcators: (Applicable to a | II LRRs, unless othe | rwise noted.) | , unio. | Indicators for P | roblematic Hydric Soils ³ : |
| Histosol (A | | | elow Surface (S8) | (LRR S. T. 1 | | (A9) (LRR Q) |
| Histic Epipe | edon (A2) | Thin Dark S | urface (S9) (LRR S | 3, T, U) | | (A10) (LRR S) |
| Black Histic | • | | ky Mineral (F1) (LR | | | ertic (F18) (outside MLRA 150A, B) |
| Hydrogen S | | | ed Matrix (F2) | | | oodplain Soils (F19) (LRR P, S, T) |
| Stratified La | | Depleted Ma | | | | Brighl Loamy Solls (F20) |
| | dies (A6) (LRR P, T, U) | Redox Dark | | | (MLRA 15 | • |
| Muck Press | / Mineral (A7) (LRR P, T, I ince (A8) (LRR U) | | rk Surface (F7) | | | Material (TF2) |
| | (A9) (LRR P, T) | Redox Depr | | | | w Dark Surface (TF12) |
| | elow Dark Surface (A11) | | chric (F11) (MLRA | 151) | Other (Expr | ain in Remarks) |
| Thick Dark | Surface (A12) | Iron-Mangar | nese Masses (F12) | | T) Indicators | of hydrophytic vegetation and |
| Coast Prairi | e Redox (A16) (MLRA 15 | OA) Umbric Surfa | ace (F13) (LRR P, | | | hydrology must be present. |
| | ky Mineral (S1) (LRR O, S | | (F17) (MLRA 151 | | | slurbed or problematic. |
| | ed Matrix (S4) | | rtic (F18) (MLRA 1 | | | |
| Sandy Red | | | oodplain Soils (F19 | | | |
| Stripped Ma | e (S7) (LRR P, S, T, U) | Anomalous l | Bright Loamy Soils | (F20) (MLF | RA 149A, 153C, 153 | D) |
| Daik Guilat | | | | | | |
| Restrictive Lav | | | | | 1 | |
| _ | er (If observed): | | | • | | |
| Туре: | er (If observed): | | | | Lividado Doll Dana | |
| Type: Depth (inche | er (If observed): | | | | Hydric Soll Pres | ent? Yes No |
| Туре: | er (If observed): | | 1 | | Hydric Soll Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): | | | | Hydric Soil Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): | | | | Hydric Soil Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): | | | | Hydric Soli Pres | ent? Yes No No |
| Type: Depth (inche | er (If observed): | 2 | | i i | Hydric Soli Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): | | n. | | Hydric Soli Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): | | | | Hydric Soll Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): | | | | Hydric Soli Pres | ent? Yes No No |
| Type: Depth (inche | er (If observed): | | | | Hydric Soli Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): | - | | | Hydric Soli Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): s): | | | | Hydric Soli Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): | | | 2 | Hydric Soli Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): s): | | | | Hydric Soli Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): s): | | | | Hydric Soil Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): s): | | | | Hydric Soil Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): s): | | | | Hydric Soil Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): s): | | | | Hydric Soil Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): s): | | | | Hydric Soil Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): s): | | | | Hydric Soll Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): s): | | | | Hydric Soll Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): s): | | | | Hydric Soli Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): s): | | | | Hydric Soli Pres | ent? Yes No |
| Type: Depth (inche | er (If observed): s): | | | | Hydric Soli Pres | ent? Yes No |

Stream Features Field Sheet

| Field Sheet |
|--|
| Date: 3-13-200 Project Site: pulle we wus #: 7/ |
| Observer(s) A. Tatme, D. Roghers |
| Stream Flow: Perennial: Intermittent Ephemeral X |
| Gradient? 86 Classification: epheneral v p-rap/sand |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: drainage alongside loag |
| Channel Has (check all that apply): Bed and Banks |
| OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation thre presence of wrack line shelving sediment sorting sediment sorting scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community other (list): the presence of litter and debris Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width Depth Avg. Water Depth Has stream morphometry been altered? Describe : |
| Habitat and Pollutants: Substrate (predominant type (s)): |
| Bank Erosion: Severe Moderate Minor |
| Describe: Nane |
| Silt Deposition: Moderate sand on top of 110-100/tash |
| Pollutants (observation / potential sources): rand tonoff) trash |
| Stormwater Outfalls: |

| Biological Habitat For (check all that apply): Federally Listed species | Fish Spawn Areas | | | | |
|---|--------------------------------|--|--|--|--|
| Other Environmentally-Sensitive Species Explain Findings: Nove | Aquatic/Wildlife Diversity | | | | |
| and the St. Color | resta and their tends | | | | |
| Riparian Zone: Development: Rad Right | bank, Forest left bank | | | | |
| Riparian vegetation: Forest | Shrubs X Herbs X | | | | |
| | , LOSA, bittersuret, ALRU | | | | |
| | talgae talt "mana" a sult tent | | | | |
| Riparian Buffer Width: | windows and a [54] | | | | |
| Approximate % Shading by Woody Species: | 553 | | | | |
| Notes: Steep rip Tap chai | unel receives flow from | | | | |
| wetland 72 & 0 | utfal e top | | | | |
| | | | | | |

| WETLAND DETERMINATION D | | | |
|---|---|--|--|
| Project/Site: Pusple M.C | City/County:/\ | re George's | _ Sampling Date: 3-13-20 |
| Applicant/Owner: MTR | <u> </u> | State: MD | _ Sampling Point: <u>MTP-72</u> |
| nvestigator(s): A. latone, D. Rodgers | Section, Township, | Range: | |
| Landform (hillslope, terrace, etc.): 50pe seep | Local relief (concave | e, convex, none): Lan | Vex Slope (%): 7103 |
| Subregion (LRR or MLRA): MLRA 199A Lat: | | Long: | Datum: |
| Soil Map Unit Name: Christiana · Downer - Ur | pan land comp | | fication: PFOIB |
| ve climatic / hydrologic conditions on the site typical for this tin | 10 THE 27 1 | (If no, explain in | |
| re Vegelation, Soil, or Hydrologysigni | | | |
| sa Vegetation | incantily disturbed? 100 A | e "Normal Circumstances" | present? Yes V No No |
| ve Vegelation, Soil, or Hydrology natu | | | |
| SUMMARY OF FINDINGS - Attach site map she | owing sampling poin | t locations, transect | s, important features, etc. |
| Hydrophytic Vegetalion Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: | Is the Samp within a We | 277 | No |
| YDROLOGY | 12 (\$10 T) ALE | | |
| Wetland Hydrology Indicators: | | Secondary Indi | cators (minimum of two required) |
| Primary Indicators (minimum of one is required; check all that | apply) | Surface Sc | oll Cracks (B6) |
| | its (B15) (LRR U) | | egetated Concave Surface (B8) Patterns (B10) |
| | ulfide Odor (C1) | | Lines (B16) |
| | nizospheres along Living Ro | | n Water Table (C2) |
| | f Reduced Iron (C4) Reduction in Tilled Soils (C | | urrows (C8) |
| | Surface (C7) | at the same of the | Visible on Aerial Imagery (C9) ic Position (D2) |
| | ain in Remarks) | | quitard (D3) |
| Inundation Visible on Aerial Imagery (B7) | | | al Test (D5) |
| Water-Stained Leaves (B9) | | | moss (D8) (LRR T, U) |
| Field Observations: | | | |
| Surface Water Present? Yes No _X Depth | (inches): | | |
| | (inches): 211 | | |
| Saluration Present? Yes X No Depth | (inches): | Wetland Hydrology Pres | ent? Yes X No |
| includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aeri | | | |
| | - Prioriogi Priorioga mobado | orio), ii availabio. | the second of the second of the second |
| Remarks: | - 11 12 - 11 - 11 | | |
| | | | |
| clayey soils restrict ground | luster move | nent | |
| clayey soils restrict ground leading to shallow water | table | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | | Dominant Species? | | Dominance Test worksheet: |
|--|---------------|---|--------------|---|
| Acet rubrum | 5 | | FAC | Number of Dominant Species That Are OBL, FACW, or FAC: (A) |
| Catalpa zperosa | 15 | - | FAC | Total Number of Dominant Species Across All Strata: 7 (B) |
| | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B) |
| 2 | 100 | A FIRST | contest y | Prevalence Index worksheet: |
| and the state of t | are its | TYLESTO | a resingt | Total % Cover of: Multiply by: |
| and the second of the second | 28 | = Total Cov | /er | OBL species x1 = |
| 50% of total cover: | _ 20% of | total cover | al spirality | FACW species x 2 = FAC species x 3 = |
| pling/Shrub Stralum (Plot size:) | 7 | - | TAC | FACU species x 4 = |
| Acet rubrum Liquidambar stratlua | 45 | 10.10 | FAC | UPL species x 5 = |
| Lianidambar stylativa | 30 | 4 | FAC | Column Totals: (A) (B) |
| | | | | |
| | | | | Prevalence Index = B/A = Hydrophytic Vegetation Indicators: |
| | | | | 1 - Rapid Test for Hydrophytic Vegetation |
| | | | | 2 - Dominance Test is >50% |
| | | | | 3 - Prevalence Index is ≤3.0¹ |
| | | = Total Co | | Problematic Hydrophytic Vegetation¹ (Explain) |
| 50% of total cover: | 20% of | total cover | : | i bridge of the right with |
| rb Stratum (Plot size:) | 20 | Y | nla | ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| Dicharthelism acumination | 10 | 4 | TAC | Definitions of Four Vegetation Strata: |
| Ludwigio alternitolia | 12 | Ÿ | FACW | Tree - Woody plants, excluding vines, 3 in. (7.6 cm) of |
| Junis effusus | 1 | volta april | FACW | more in diameter at breast height (DBH), regardless of height. |
| AND THE PARK OF TH | 7 | ogen vi Ingel | episola est. | Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| 25 (Bill, 1 co.) esc (8 c) | | | | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. |
| | | | | Woody vine – All woody vines greater than 3.28 ft in height. |
| | 110 | | | |
| 50% of total cover: | | = Total Co f total cove | | - 44 |
| body Vine Stratum (Plot size:) | 20% 0 | total cove | Maria Co. | Secretary with an arrange first the same and the same and |
| Louiera japonica | 5 | <u> Y</u> | FAC | |
| 2 1 | | | | सर्वे भवा |
| | | | | |
| 2.9 | - | 4 1 24 | -500 | |
| | 5 | = Total Co | ver | Hydrophytic Vegetation |
| 50% of total cover: | 20% o | | | Present? Yes No |
| 50% of total cover: marks: (If observed, list morphological adaptations below | | = Total Co | | |

Sampling Point: WTP-72

| Depth | Matrix | | Redo | x Features | | | | | | |
|---|--|--------------|------------------------------|---------------|--------------|------------------|--------------------------------|---------------------------------------|---------------|--------------|
| (inches) | Color (moist) | <u> </u> | Color (moist) | | Type | Loc ² | Texture | | Remarks | |
| 2-12+ | 104R6/Z | 85 | 7.5YR416 | 15 | | M | C | | | |
| 53.0 | | | 10 | | | - 1 | | 4.11 | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| (f _{ine} , and | | | | | | | | | | |
| | | | | Ti . | | | | | | |
| | | | | | | | | · · · · · · · · · · · · · · · · · · · | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Type: C=Cc | ncentration D=De | nietlon RM: | =Reduced Matrix, MS | S-Mackad S | Sand Cro | inc | ² l continue [| 31 - Dana 1 t | -l 14 14-1 | 1 |
| lydric Soll l | ndicators: (Appli | cable to all | LRRs, unless other | wise note | 4) | 1115. | Indicators f | | ning, M≃Matr | |
| Histosol (| | | | | | | | | | Sons : |
| | ipedon (A2) | | Polyvalue Be | HOW SURIECE | 8 (58) (LI | KK 5, 1, 0 | | | | |
| Black His | | | Thin Dark Su | mace (59) (| LKK S, T | Γ, υ) | | Jck (A10) (| | |
| | n Sulfide (A4) | | Loamy Muck | y Ivaneral (F | -1) (LKK | O) | | | | MLRA 150A, |
| | Layers (A5) | 60. | Loamy Gleye | io Marix (F. | 2) | | | | | (LRR P, S, 1 |
| | Bodies (A6) (LRR | PTIN | Depleted Mai | | | | | | Loamy Soils | (FZO) |
| | cky Mineral (A7) (L | | Redox Dark : | | | | | 4 153B) | -1 (TCO) | |
| | esence (A8) (LRR | | | | • | | | ent Materia | | |
| | k (A9) (LRR P, T) | | Redox Depre Marl (F10) (L | | , | | | | Surface (TF | 12) |
| | Below Dark Surfa | | Depleted Oct | | MI DA 46 | :4 \ | Other (E | xplain in F | (emarks) | |
| | rk Surface (A12) | CC (/111) | Iron-Mangan | | | | T1 31 | | | 1 |
| | airie Redox (A16) | MI RA 1504 | A) Umbric Surfa | | | | | | rophytic vege | |
| Sandy M | ucky Mineral (S1) | (IRROS) | | | | 0) | | | gy must be p | |
| Sandy GI | eyed Matrix (S4) | (=1(1(0, 0) | Della Ochric Reduced Ver | | | anak an | unies | ss disturbe | d or problema | Alic. |
| _ Sandy Re | | | Piedmont Flo | uc (Fio) (M | 1C (E40) (| MI DA 44 | 0.43 | | | |
| | Matrix (S6) | | Anomaious E | Ouplain Su | (IS (F 19) (| MILICA 14 | 9A) | | | |
| | | | | | v Caila /E | CON /MI D | 8 44D8 4890 . | | | |
| | | STIN | /11011 21003 | sright Loam | y Soils (F | 20) (MLR | A 149A, 153C, | 153D) | | |
| Dark Surf | face (S7) (LRR P, | | Attornations E | sright Loam | y Soils (F | 20) (MLR | A 149A, 153C, | 153D) | | |
| Dark Surf Restrictive L | | | Anonialous E | right Loam | y Soils (F | F20) (MLR/ | A 149A, 153C, | 153D) | | 1 |
| Dark Surf Restrictive La Type: | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | F20) (MLR | | 5 | / | |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | sright Loam | y Soils (F | F20) (MLR/ | A 149A, 153C, Hydric Soll F | 5 | Yes V | . No |
| Dark Surf Restrictive La Type: | face (S7) (LRR P, ayer (if observed | | | sright Loam | y Soils (F | F20) (MLR/ | | 5 | Yes | . No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | sright Loam | y Soils (F | 720) (MLR/ | | 5 | Yes V | No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR | | 5 | Yes | . No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR | | 5 | Yes | . No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR | | 5 | Yes | _ No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR | | 5 | Yes | _ No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR | | 5 | Yes | _ No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR | | 5 | Yes | No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR | | 5 | Yes | No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR | | 5 | Yes V | No |
| Dark Surf estrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR | | 5 | Yes V | No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR | | 5 | Yes V | No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR | | 5 | Yes V | No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR | | 5 | Yes V | No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR | | 5 | Yes | No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR) | | 5 | Yes V | No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR | | 5 | Yes V | No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR | | 5 | Yes V | No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | Allonialous L | right Loam | y Soils (F | (MLR | | 5 | Yes | No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR) | | 5 | Yes | No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR) | | 5 | Yes | No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR) | | 5 | Yes | No |
| Dark Surf Restrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR) | | 5 | Yes | No |
| Dark Surf estrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR) | | 5 | Yes | No |
| Dark Surf estrictive La Type: Depth (incl | face (S7) (LRR P, ayer (if observed | | | right Loam | y Soils (F | (MLR) | | 5 | Yes | No |

| Project/Site: Put Line Sampling Date: \$77-73 Applicant/Owner: MTA State: MO Sampling Point: WIP7-3 Investigator(s): A. Tabol. D. Robards Section, Township, Range: Local relief (concave, convex, none): Coward Slope (%): 1-2 |
|--|
| Applicant/Owner: MTA State: MO Sampling/Point: WIPTO Investigator(s): A. Tabel D. Rodacis Section, Township, Range: |
| Investigator(s): A. Tafare, D. Rodaces Section, Township, Range: |
| Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Coware Slope (%): 1-2 |
| |
| Subregion (LRR or MLRA): MLRA 149A Lat: Long: Datum: |
| Soil Map Unit Name: Urban land w Christian Downer & Issue, occ. Flooder classification: PFOIAA |
| Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.) |
| Are Vegetation, Soil, or Hydrology significantly disturbed? No Are "Normal Circumstances" present? Yes X No |
| Are Vegetation, Soil, or Hydrology naturally problematic? \$\int_{\ell}\$ (If needed, explain any answers in Remarks.) |
| |
| SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, e |
| Hydrophytic Vegetation Present? Hydric Soil Present? Welland Hydrology Present? Remarks: Yes X No |
| Currently raining |
| Suppose states perched on day |
| HYDROLOGY |
| Wetland Hydrology Indicators: Secondary Indicators (minimum of two require |
| Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) |
| ∑ Surface Water (A1) Aquatic Fauna (B13) Sparsely Vegetated Concave Surface (B8 |
| High Water Table (A2) Marl Deposits (B15) (LRR U) Saturation (A3) Marl Deposits (B15) (LRR U) Moss Trim Lines (B16) |
| |
| |
| |
| Sediment Deposils (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) |
| Sediment Deposils (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) |
| Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Prift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) |
| Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Thin Muck Surface (C7) Other (Explain in Remarks) Saturation Visible on Aerial Imagery (D3) FAC-Neutral Test (D5) |
| Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks) Saturation Visible on Aerial Imagery (C9) |
| Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5) Sphagnum moss (D8) (LRR T, U) Field Observations: |
| Sediment Deposits (B2) Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Mecent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5) Sphagnum moss (D8) (LRR T, U) |
| Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Other (Explain in Remarks) Shallow Aquitard (D3) FAC-Neutral Test (D5) Water-Stained Leaves (B9) Sphagnum moss (D8) (LRR T, U) Surface Water Present? Yes No Depth (inches): |
| Sediment Deposits (B2) |
| Sediment Deposits (B2) |
| Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Indicated Present? |
| Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Other (Explain in Remarks) Shallow Aquitard (D3) Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) |
| Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Indicated Present? |
| Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Other (Explain in Remarks) Shallow Aquitard (D3) Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) |
| Sediment Deposits (B2) Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Fresent? Yes No No Remarks: |
| Sediment Deposits (B2) Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Fresent? Yes No No Remarks: |
| Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Other (Explain in Remarks) Shallow Aquitard (D3) Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) |
| Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Other (Explain in Remarks) Shallow Aquitard (D3) Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) |
| Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Other (Explain in Remarks) Shallow Aquitard (D3) Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) |
| Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Other (Explain in Remarks) Shallow Aquitard (D3) Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Shallow Aquitard (D3) |

| VEGETATION (Four Strata) - Use scientific na | mes of pla | ants. | | Sampling Point: WTP-73 |
|--|------------|--------------|-----------|--|
| | | Dominant | Indicator | Dominance Test worksheet: |
| Tree Stratum (Plot size: 30) | G 200 | Species? | | Number of Dominant Species |
| 1. Aces saccharonom | 10 | | FACO | That Are OBL, FACW, or FAC: (A) |
| 2. Saliv nugla | 25 | - | DRF | Total Number of Dominant |
| 3. Acer rubrum | 10 | | FAC | Species Across All Strata: (B) |
| 4. Catalor sperios | 15 | | FACU | Barrel of Barrier 18 |
| 5. Ponvs vitainiana | 10 | 4 | UPL | Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B) |
| 6. I irradendran taspitera | 10 | 7 | FACU | |
| 7. Laudinhar styracollus | 8 | | FAC | Prevalence Index worksheet: |
| 8. Platanus accidentalis | _8_ | | FACW | Total % Cover of: Multiply by: |
| | 96 | = Total Cov | er | OBL species x 1 = |
| 50% of,total cover: | 20% of | total cover | 19.2 | FACW species x 2 = |
| Sapling/Shrub Stratum (Plot size: | | | | FAC species x 3 = |
| 1. New norum | 50 | 4 | FAC | FACU species x 4 = |
| 2. Liquidamber, Salacitya | 75 | Y | CAC | UPL species x 5 = |
| 3. Vibunia dontatum | 7 | | EAC | Column Totals: (A) (B) |
| 4. Catalina Thecopy | 15 | | FACIL | |
| 5. Umus americana | 0 | | FACW | Prevalence Index = B/A = |
| | 2 | | Thum | Hydrophytic Vegetation Indicators: |
| 6 | | | | 1 Rapid Test for Hydrophytic Vegetation |
| 7 | | | | 2 - Dominance Test is >50% |
| 8 | 100 | | | 3 - Prevalence Index is ≤3.01 |
| | | = Total Cov | | Problematic Hydrophytic Vegetation¹ (Explain) |
| 50% of total cover: | 20% of | total cover | 24.4 | and the same of th |
| Herb Stratum (Plot size: 30) | 154 | | 7 | Indicators of hydric soil and wetland hydrology must |
| 1. Ficaria yerna | 45 | | FAC | be present, unless disturbed or problematic. |
| 2. VAA ADOLUSTO 5 | 20 | Y | FAC | Definitions of Four Vegetation Strata: |
| 3. Linuxdampar atractilus | 15 | 111 | FAC | 200 |
| 4. Acer porm | 6 | | FAC | Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or |
| 5. Onnever garshills | Ž | | FACW | more in diameter at breast height (DBH), regardless of height. |
| 6. Vibernem dentatum | Ü | | FAC | Hamiltonia and the second second |
| 7. Impatiens capensis | 7 | | FACW | Sapting/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| | | | | than 3 in. DBH and greater than 3.28 it (1 m) tall. |
| | | | | Herb - All herbaceous (non-woody) plants, regardless |
| 9. | | | | of size, and woody plants less than 3.28 ft tall. |
| 10 | | | | Woody vine – All woody vines greater than 3.28 ft in |
| 11 | | | | height. |
| 12 | | | | . X |
| the Alexander Alexander | 101 | = Total Cov | /er | |
| 50% of total cover: | 20% of | total cover | 20.2 | |
| Woody Vine Stratum (Plot size: 30) | 10 | | | |
| 1. 16x100 dendron vad; cans | 10 | | FAE | |
| 2. LOMICERAS TARONS GO | 3 | 4 | FAC | |
| 3. Loniusia | | | | |
| 4 | | | | |
| 5. | | | | |
| | 13 | | | Hydrophytic |
| 500/ of hal-1 | | = Total Cov | \sim | Vegetation Present? Yes No |
| 50% of total cover: | | total cover | 0.0 | 103 103 |
| Remarks: (If observed, list morphological adaptations belo | | 7 | | |
| 21- LOOKING East at W | TYLO | 15 | | |
| | , – | - | | * |
| | | | | |
| | | | | |
| | | | | |
| | | | | - |
| | | | | 1-0 |

| | | | | | | | the absence | | |
|--------------------------------|--------------------------------------|-----------------|---------------------------------------|-------------|----------------|----------------|------------------------|-----------------------|---------------------|
| Depth (inches) | Color (moist) | | | ox Features | Time | 1002 | Taytura | (e) | nelen |
| Unicites) | 2 CVUIN | - 10 | Color (moist) | - <u>%</u> | Type | Loc² | Texture | Rem | arks |
| 0-0 | 2017/2 | | 1.5YN 71.0 | - 5 | | \overline{W} | 201 | | |
| 5-124 | MYKOL | 60 | 7.57149/6 | 40 | $\underline{}$ | M | <u> </u> | Wasave | |
| | · | | C | | | | | .1 | 98 |
| | | | | | | | | | * |
| | | | | | | | | | |
| | - | | | | | | | 180 | |
| | | | | | | | | | ¥ _{rj} |
| | 9 | | | | | | 9 K N | | |
| ¹Type: C=C | oncentration, D=[| Depletion, RM: | =Reduced Matrix, M | S=Masked | Sand Gr | ains. | ² Location: | PL=Pore Lining, M: | =Matrix. |
| | | | LRRs, unless othe | | | | | for Problematic H | |
| Histoso | I (A1) | | Polyvalue B | elow Surfac | e (S8) (L | .RR S. T. U | l) 1 cm ! | Muck (A9) (LRR O) | |
| Histic E | pipedon (A2) | | Thin Dark S | | | | | Muck (A10) (LRR S) | |
| Black H | istic (A3) | | Loamy Muci | | | | _ | | side MLRA 150A,B) |
| | en Sulfide (A4) | | Loamy Gley | ed Matrix (| | | | | (F19) (LRR P, S, T) |
| | d Layers (A5) | | No Depleted Ma | | | | Anom | alous Bright Loamy | Soils (F20) |
| | Bodies (A6) (LR | | Redox Dark | | | | | RA 153B) | |
| | ucky Mineral (A7) | | | | | | _ | Parent Material (TF2) | |
| . — | resence (A8) (LR uck (A9) (LRR P, | • | Redox Depr | | b) | | | Shallow Dark Surfac | • • |
| | d Below Dark Su | | Marl (F10) (Depleted Or | | /RALDA 1 | 54\ | Other | (Explain in Remarks | 5) |
| | ark Surface (A12) | | Iron-Mangai | | | | T) ³ Indi | cators of hydrophytic | r vegetation and |
| | rairie Redox (A16 | • | | | | | | etland hydrology mus | |
| | Mucky Mineral (S | | | | | | | less disturbed or pro | |
| | Gleyed Matrix (S4 | | Reduced Ve | | | | | | |
| Sandy I | Redox (S5) | | Piedmont F | | | | | | |
| | d Matrix (S6) | | Anomalous | Bright Loar | ny Soils | (F20) (MLF | RA 149A, 1530 | C, 153D) | |
| | urface (S7) (LRR | P, S, T, U) | | | | | | | |
| | 4 44 5 | | | | | | | | |
| | Layer (if observ | | | | | | <u> </u> | | |
| Туре: | | | | 9 | | | | 1.5 | ٧ |
| Type: Depth (in | Layer (if observ | | | 9 | | | Hydric So | Il Present? Yes _ | No |
| Туре: | | | | 2 | | | Hydric So | Il Present? Yes | X No |
| Type: Depth (in | | | | 3 | | | Hydric So | Il Present? Yes_ | X No |
| Type: Depth (in | | | | 3 | | | Hydric So | Il Present? Yes_ | X No |
| Type: Depth (in | | | | 3 | | | Hydric So | Il Present? Yes_ | No |
| Type: Depth (in | | | | 3 | | | Hydric So | Il Present? Yes_ | No |
| Type: Depth (in | | | | 3 | | | Hydric So | Il Present? Yes _ | No |
| Type: Depth (in | | | | 3 | | | Hydric So | Il Present? Yes _ | No |
| Type: Depth (in | | ed): | | 3 | | | . 10 | | No |
| Type: Depth (in | nches): | ed): | | 3 | | | Hydric Sol | | No |
| Type: Depth (in | | ed): | | 3 | | | | | No |
| Type: Depth (in | nches): | ed): | | 3 | | | . 10 | | No |
| Type: Depth (in Remarks: | nches): | ed): | | 3 | | | | | No |
| Type: Depth (in Remarks: | nches): | ed): | | 3 | | | | | No |
| Type: Depth (in Remarks: | nches): | ed): | | | | | | | No |
| Type: Depth (in Remarks: | nches): | ed): | | | | | | | No |
| Type: Depth (in Remarks: | nches): | ed): | | | | | | | No |
| Type: Depth (in Remarks: | nches): | ed): | | | | | | | No |
| Type: Depth (in Remarks: | nches): | ed): | | | | | | | No |
| Type: Depth (in Remarks: | nches): | ed): | | | | | | | No |
| Type: Depth (in Remarks: | nches): | ed): | 2000 | | | | | | No |
| Type: Depth (in Remarks: | nches): | ed): | · · · · · · · · · · · · · · · · · · · | | | | | | No |
| Type: Depth (in Remarks: | nches): | ed): | · · · · · · · · · · · · · · · · · · · | | | | | | No |
| Type: Depth (in Remarks: | nches): | ed): | · · · · · · · · · · · · · · · · · · · | | | | | | No |
| Type: Depth (in Remarks: | nches): | ed): | · · · · · · · · · · · · · · · · · · · | | | | | | No |

| | FORM – Atlantic and Gulf Coastal Plain Region |
|--|--|
| Project/Site: Puple Line | City/County: Riverdale Park/PG Sampling Date: 5/7/13 |
| Applicant/Owner: MTA | State: MD Sampling Point: U)TP-75 |
| Investigator(s): D. Rodows, A. Totone, | Section, Township, Range: |
| Landform (hillslope, terrace, etc.): 5WM ditch | Local relief (concave, convex, none): Cancave Slope (%): 2 |
| AALOA ALIOA | |
| a in the way Cod and & Hatharn: Urban las | nd complex, freq flooded Wt classification: PEMIA |
| Are climatic / hydrologic conditions on the site typical for this time of you | |
| | y disturbed? No Are "Normal Circumstances" present? Yes No |
| Are Vegetation, Soil, or Hydrology naturally pr | roblematic? No (If needed, explain any answers in Remarks.) |
| | g sampling point locations, transects, important features, etc. |
| Sommant of Implifes - Attach site map showing | g sampling point locations, transects, important leatures, etc. |
| Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No | Is the Sampled Area within a Wetland? Yes No |
| vegetated suale carres Stomwader n | most |
| The second of th | |
| HYDROLOGY | |
| | Secondary Indicators (minimum of two required) |
| Wetland Hydrology Indicators: | |
| Primary Indicators (minimum of one is required; check all that apply | |
| ✓ Surface Water (A1) Aquatic Fauna (B | |
| High Water Table (A2) Marl Deposits (B1 Saturation (A3) Hydrogen Sulfide | |
| | c Odor (C1) Moss Trim Lines (B16) pheres along Living Roots (C3) Dry-Season Water Table (C2) |
| Sediment Deposits (B2) Presence of Redu | 1 |
| | uction in Tilled Soils (C6) Seturation Visible on Aerial Imagery (C9) |
| Algal Mat or Crust (B4) Thin Muck Surface | |
| Iron Deposits (B5) Other (Explain in | |
| Inundation Visible on Aerial Imagery (B7) | FAC-Neutral Test (D5) |
| Water-Stained Leaves (B9) | Sphagnum moss (D8) (LRR T, U) |
| Field Observations: | |
| Surface Water Present? Yes No Depth (inche | es). $\leq 5''$ |
| Water Table Present? Yes No Depth (inche | ac): |
| Saturation Present? Yes No Depth (inche | |
| (includes capillary fringe) | ss). O wettatid flydiology Present: Tes 110 |
| Describe Recorded Data (stream gauge, monitoring well, aerial pho | otos, previous inspections), if available: |
| | |
| Remarks: | |
| trash present | |
| Many preap YTD | |
| raining during delineation | |
| | |
| Photo 23-looking W | |
| | |
| - I | |

| VEGETATION (Four Strata) - Ose scientific n | | | | Sampling Point: W 17 13 |
|--|---------------------|----------------------|---------|---|
| Tree Stratum (Plot size:) | Absolute % Cover | Dominant Species? | | Dominance Test worksheet: |
| 1 | 70 COVE | Opecies: | Otatus | Number of Dominant Species That Are OBL, FACW, or FAC: (A) |
| 2. | | | | Constant A Constant |
| 3. | | | | Total Number of Dominant |
| 4. | | | | Species Across All Strata: (B) |
| 5 | | | | Percent of Dominant Species That Are OBL FACW or FAC: (A/B) |
| | | | | That Are OBL, FACW, or FAC: (A/B) |
| 5. | | | | Prevalence Index worksheet: |
| 7. | | | | Total % Cover of: Multiply by: |
| 3 | | | | OBL species x 1 = |
| | | = Total Cov | | FACW species x 2 = |
| 50% of total cover: | 20% of | total cover | : | FAC species x 3 = |
| Sapling/Shrub Stratum (Plot size:) | | | | FACU species x 4 = |
| · | | | | UPL species x 5 = |
| 2. | | | | |
| 8. | | | | Column Totals: (A) (B) |
| | | | | Prevalence Index = B/A = |
| 5. | | | | Hydrophytic Vegetation Indicators: |
| 5 | | | | |
| 7 | | | | 2 - Dominance Test is >50% |
| 3 | | | | 3 - Prevalence Index is ≤3.0¹ |
| | | = Total Co | ver | |
| 50% of total cover: | | | | Problematic Hydrophytic Vegetation¹ (Explain) |
| Herb Stratum (Plot size:) | | | | 1 |
| 1. Juncus etwas | 5 | | OBL | Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| Carey sp. | 50 | | nla | Definitions of Four Vegetation Strata: |
| 3. Impatiens cevening | 39 | - 10 | FACW | Definitions of Four Vegetation Strata. |
| 4. Rosa mudiflota | | | Incu | Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or |
| | | | - | more in diameter at breast height (DBH), regardless of height. |
| 5. | | | | rieight. |
| 6. | | | | Sapting/Shrub - Woody plants, excluding vines, tess |
| 7. | | | | than 3 in. DBH and greater than 3,28 ft (1 m) tall. |
| B | | | | Herb - All herbaceous (non-woody) plants, regardless |
| 9. | | | - | of size, and woody plants less than 3.28 ft tall. |
| 10 | | | | Woody vine – All woody vines greater than 3.28 ft in |
| 11 | | | | height. |
| 12 | | | | |
| | 65 | = Total Co | ver | |
| 50% of total cover: | 20% c | f total cove | r. 13 | |
| Woody Vine Stratum (Plot size:) | | | | |
| 1. Toxicodendron radicans | 8 | Y | FAC | |
| 2. Lonicera japonica | ĪĎ | - | EAC | Title- |
| 3. | | | · FAO | |
| 4 | | | - | |
| 5 | | | | |
| 5 | - 10 | | | Hydrophytic |
| | $-\sqrt{x}$ | = Total Co | | Vegetation Present? Yes No No |
| 50% of total cover: | 20% c | of total cove | n/,_ | |
| Remarks: (If observed, list morphological adaptations b Carex un identificable due to e | elow). early Se | won, | species | present more than likely |
| | | | | royor sprojites |
| | | | | - |
| | | | | |
| As a second seco | | | | |

| Depth Maltrix (rinches) | Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. | 2Location: Indicators:1 cm M2 cm M Reduce:Anoma(MLF Red Ps Very S Other (T) 3Indicators: wetunle | PL=Pore Lining, M=N for Problematic Hyc uck (A9) (LRR O) uck (A10) (LRR S) ed Vertic (F18) (outsi ont Floodplain Soals (I lous Bright Loamy So AA 153B) arent Material (TF2) hallow Dark Surface Explain in Remarks) ators of hydrophytic land hydrology must ess disturbed or prob | Matrix. dric Soils ³ : ide MLRA 150A,B) F19) (LRR P, S, T) oils (F20) (TF12) vegetation and be present, |
|--|--|---|--|--|
| O-8 DYR3/1 9D 7.57R5/6 D M S bund ordered | Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. | 2Location: Indicators:1 cm M2 cm M Reduce:Anoma(MLF Red Ps Very S Other (T) 3Indicators: wetunle | PL=Pore Lining, M=N for Problematic Hyc uck (A9) (LRR O) uck (A10) (LRR S) ed Vertic (F18) (outsi ont Floodplain Soals (I lous Bright Loamy So AA 153B) arent Material (TF2) hallow Dark Surface Explain in Remarks) ators of hydrophytic land hydrology must ess disturbed or prob | Matrix. dric Soils ³ : ide MLRA 150A,B) F19) (LRR P, S, T) oils (F20) (TF12) vegetation and be present, |
| Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Turns | Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. | 2Location: Indicators 1 cm M 2 cm M Reduce Piedmo Anoma (MLF Red Pe Very S Other (T) 3Indic wet unle | PL=Pore Lining, M=N for Problematic Hyd uck (A9) (LRR O) uck (A10) (LRR S) ed Vertic (F18) (outsi ont Floodplain Soils (I lous Bright Loamy So RA 153B) arent Material (TF2) hallow Dark Surface Explain in Remarks) ators of hydrophytic v land hydrology must ess disturbed or prob | Matrix. dric Soils ³ : ide MLRA 150A,B) F19) (LRR P, S, T) oils (F20) (TF12) vegetation and be present, |
| Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. 1 | Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Depleted Matrix (F2) Stratified Layers (A5) Depleted Matrix (F3) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) 5 cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F7) Muck Presence (A8) (LRR U) Redox Depressions (F8) 1 cm Muck (A9) (LRR P, T) Marl (F10) (LRR U) Depleted Below Dark Surface (A11) Depleted Ochric (F11) (MLRA 151) Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) Sandy Redox (S5) Reduced Vertic (F18) (MLRA 150A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 141) Type: Depth (inches): | 2Location: Indicators 1 cm M 2 cm M Reduce Piedmo Anoma (MLF Red Pe Very S Other (T) 3Indic | for Problematic Hyduck (A9) (LRR O) uuck (A10) (LRR S) ed Vertic (F18) (outsi ent Floodplain Soils (I lous Bright Loamy So RA 153B) arent Material (TF2) hallow Dark Surface Explain in Remarks) ators of hydrophytic v land hydrology must ess disturbed or prob | ide MLRA 150A,B) F19) (LRR P, S, T) oils (F20) (TF12) vegetation and be present, |
| Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. 1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1 | Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Hydric Soit Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) | Indicators 1 cm M 2 cm M Reduce Piedmo Anoma (MLF Red Pe Very S Other (T) 3Indic | for Problematic Hyduck (A9) (LRR O) uuck (A10) (LRR S) ed Vertic (F18) (outsi ent Floodplain Soils (I lous Bright Loamy So RA 153B) arent Material (TF2) hallow Dark Surface Explain in Remarks) ators of hydrophytic v land hydrology must ess disturbed or prob | ide MLRA 150A,B) F19) (LRR P, S, T) oils (F20) (TF12) vegetation and be present, |
| Hydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Depleted Bodies (A6) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Depleted Bodies (A11) Thick Dark Surface (A12) To Munck (A9) (LRR P, T) Depleted Bodies (A6) (LRR P, T) Depleted Bodies (A12) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR Q, S) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Reduced Vertic (F18) (MLRA 150A, 150B) Reduced Vertic (F19) MLRA 149A, 153C, 153D) Reduced Vertic (F19) Hydric Soll Present? Yes No Remarks: | Hydric Soit Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) | Indicators 1 cm M 2 cm M Reduce Piedmo Anoma (MLF Red Pe Very S Other (T) 3Indic | for Problematic Hyduck (A9) (LRR O) uuck (A10) (LRR S) ed Vertic (F18) (outsi ent Floodplain Soils (I lous Bright Loamy So RA 153B) arent Material (TF2) hallow Dark Surface Explain in Remarks) ators of hydrophytic v land hydrology must ess disturbed or prob | ide MLRA 150A,B) F19) (LRR P, S, T) oils (F20) (TF12) vegetation and be present, |
| Hydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Depleted Bodies (A6) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Depleted Bodies (A11) Thick Dark Surface (A12) To Munck (A9) (LRR P, T) Depleted Bodies (A6) (LRR P, T) Depleted Bodies (A12) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR Q, S) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Reduced Vertic (F18) (MLRA 150A, 150B) Reduced Vertic (F19) MLRA 149A, 153C, 153D) Reduced Vertic (F19) Hydric Soll Present? Yes No Remarks: | Hydric Soit Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) | Indicators 1 cm M 2 cm M Reduce Piedmo Anoma (MLF Red Pe Very S Other (T) 3Indic | for Problematic Hyduck (A9) (LRR O) uuck (A10) (LRR S) ed Vertic (F18) (outsi ent Floodplain Soils (I lous Bright Loamy So RA 153B) arent Material (TF2) hallow Dark Surface Explain in Remarks) ators of hydrophytic v land hydrology must ess disturbed or prob | ide MLRA 150A,B) F19) (LRR P, S, T) oils (F20) (TF12) vegetation and be present, |
| Hydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Depleted Bodies (A6) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Depleted Bodies (A11) Thick Dark Surface (A12) To Munck (A9) (LRR P, T) Depleted Bodies (A6) (LRR P, T) Depleted Bodies (A12) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR Q, S) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Reduced Vertic (F18) (MLRA 150A, 150B) Reduced Vertic (F19) MLRA 149A, 153C, 153D) Reduced Vertic (F19) Hydric Soll Present? Yes No Remarks: | Hydric Soit Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) | Indicators 1 cm M 2 cm M Reduce Piedmo Anoma (MLF Red Pe Very S Other (T) 3Indic | for Problematic Hyduck (A9) (LRR O) uuck (A10) (LRR S) ed Vertic (F18) (outsi ent Floodplain Soils (I lous Bright Loamy So RA 153B) arent Material (TF2) hallow Dark Surface Explain in Remarks) ators of hydrophytic v land hydrology must ess disturbed or prob | ide MLRA 150A,B) F19) (LRR P, S, T) oils (F20) (TF12) vegetation and be present, |
| Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Depleted Bolow Surface (F1) Muck Presence (A8) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Depleted Bolow Surface (F7) Muck Presence (A8) (LRR P, T, U) Depleted Bolow Surface (F7) Mart (F10) (LRR P, T) Depleted Bolow Dark Surface (F7) Think Dark Surface (A12) Sandy Mucky Mineral (A7) (LRR P, S, T) Sandy Mucky Mineral (A16) (RRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Pettomatific Hydric Soils Size (F9) Loamy Mucky Mineral (A7) (LRR D) Depleted Bolow Dark Surface (A12) Umbric Surface (F13) (LRR P, T, U) Depleted Bolow Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) Hydric Soil Present? Yes No Remarks: | Hydric Soit Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) | Indicators 1 cm M 2 cm M Reduce Piedmo Anoma (MLF Red Pe Very S Other (T) 3Indic | for Problematic Hyduck (A9) (LRR O) uuck (A10) (LRR S) ed Vertic (F18) (outsi ent Floodplain Soils (I lous Bright Loamy So RA 153B) arent Material (TF2) hallow Dark Surface Explain in Remarks) ators of hydrophytic v land hydrology must ess disturbed or prob | ide MLRA 150A,B) F19) (LRR P, S, T) oils (F20) (TF12) vegetation and be present, |
| Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Depleted Bolow Surface (S7) Muck Presence (A8) (LRR P, T, U) Muck Presence (A8) (LRR P, T) Depleted Bolow Surface (F7) Mart (F10) (LRR P, T) Depleted Bolow Surface (F7) Mart (F10) (LRR P, T) Depleted Bolow Dark Surface (F7) Depleted Bolow Dark Surface (T12) Thick Cark Surface (A12) Sandy Mucky Mineral (S1) (LRR P, S) Sandy Gleyed Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Pettor of the Condition of t | Hydric Soit Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) | Indicators 1 cm M 2 cm M Reduce Piedmo Anoma (MLF Red Pe Very S Other (T) 3Indic | for Problematic Hyduck (A9) (LRR O) uuck (A10) (LRR S) ed Vertic (F18) (outsi ent Floodplain Soils (I lous Bright Loamy So RA 153B) arent Material (TF2) hallow Dark Surface Explain in Remarks) ators of hydrophytic v land hydrology must ess disturbed or prob | ide MLRA 150A,B) F19) (LRR P, S, T) oils (F20) (TF12) vegetation and be present, |
| Histosol (A1) Polyvatue Below Surface (S8) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR S) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, Be Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Peldmont Floodplain Soils (F19) (LRR P, S, T, Anomalous Bright Loamy Soils (F20) (MLRA 153B) 5 cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F6) (MLRA 153B) 5 cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F7) Redox Dark Surface (F7) Redox Dark Surface (F8) Very Shallow Dark Surface (TF12) 1 cm Muck (A9) (LRR P, T) Mart (F10) (LRR U) Depleted Dark Surface (F8) Very Shallow Dark Surface (TF12) Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U) welland hydrology must be present, unless disturbed or problematic. Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) (unless disturbed or problematic. Sandy Gleyed Matrix (S6) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Restrictive Layer (if observed): Type: Depth (inches): Remarks: | Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Huck Presence (A8) (LRR P, T) Depleted Below Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S6) Sandy Redox (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depletion Mucky Surface (S8) (LRR S, T, U) Thin Dark Surface (S9) (LRR S, T, U) Loamy Mucky Mineral (F1) (LRR O) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Loamy Gleyed Matrix (S4) Medox Dark Surface (F6) Depleted Dark Surface (F7) Redox Dark Surface (F7) Redox Dark Surface (F7) Redox Depressions (F8) Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, Umbric Surface (F13) (LRR P, T, U) Delta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 144) Anomalous Bright Loamy Soils (F20) (MLRA 145) Type: Depth (inches): | 1 cm M 2 cm M Reduce Piedmo Anoma (MLF Red Pe Very S Other (T) 3Indic wet | uck (A9) (LRR O) uck (A10) (LRR S) ed Vertic (F18) (outsi ont Floodplain Soils (I lous Bright Loamy So RA 153B) arent Material (TF2) hallow Dark Surface Explain in Remarks) ators of hydrophytic v land hydrology must ess disturbed or prob | ide MLRA 150A,B) F19) (LRR P, S, T) oils (F20) (TF12) vegetation and be present, |
| Histic Epipedon (A2) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR Q) Reduced Vertic (F18) (outside MLRA 150A, Bedieved Vertic (F18) (outside MLRA 150A, F18) Redox Dark Surface (F6) Organic Bodies (A6) (LRR P, T, U) Pepleted Matrix (F3) Muck Presence (A8) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Redox Depressions (F8) I crim Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Ton-Manganese Masses (F12) (LRR 0, P, T) Depleted Delow Dark Surface (A12) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR 0, S) Sandy Mucky Mineral (S1) (LRR 0, S) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Restrictive Layer (If observed): Type: Depth (inches): No Redox Carsh Warrace (S7) (LRR P, S, T, U) Restrictive Layer (If observed): Type: Depth (inches): No | Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Muck Presence (A8) (LRR P, T) Depleted Below Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S6) Stripped Matrix (S6) Depleted Surface (S9) (LRR S, T, U) Loamy Mucky Mineral (F1) (LRR O) Loamy Mucky Mineral (F1) (LRR O) Loamy Mucky Mineral (F1) (LRR O) Depleted Matrix (F3) Redox Depressions (F8) Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, Umbric Surface (F13) (LRR P, T, U) Delta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 14) Anomalous Bright Loamy Soils (F20) (MLRA 14) Type: Depth (inches): | 2 cm M Reduce Piedmo Anoma (MLF Red Pe Very S Other (T) 3Indic wet unte | cuck (A10) (LRR S) and Vertic (F18) (outsiont Floodplain Soils (I lous Bright Loamy Soils (I lous Brig | F19) (LRR P, S, T) oils (F20) (TF12) vegetation and be present, |
| Hydrogen Sulfide (A4) Stratified Layers (A5) Organie Bodies (A6) (LRR P, T, U) Formatie Bodies (A6) (LRR P, T, U) Depleted Matrix (F2) Muck Presence (A6) (LRR P, T, U) Depleted Dark Surface (F7) Muck Presence (A6) (LRR U) 1 cm Muck (A9) (LRR P, T, U) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR P, S, T, U) Depleted Below Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR P, S, T) Sandy Mucky Mineral (S1) (LRR P, S, T) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Loany Gleyed Matrix (F2) Depleted Matrix (F2) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Redox Dark Surface (F13) (MLRA 150A, 153C, 153D) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Remarks: | Hydrogen Sulfide (A4) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Sommution Mucky Mineral (A7) (LRR P, T, U) I cm Muck Presence (A8) (LRR U) I cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depthed Matrix (F3) Depleted Matrix (F3) Peddox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, Umbric Surface (F13) (LRR P, T, U) Delta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 14) Anomalous Bright Loamy Soils (F20) (MLRA 150B) Type: Depth (inches): | Piedmo Anoma (MLF Red Pa Very S Other (T) Pindic wet unte | ont Floodplain Soils (I lous Bright Loamy So & A 153B) arent Material (TF2) hallow Dark Surface Explain in Remarks) ators of hydrophytic v land hydrology must ess disturbed or prob | F19) (LRR P, S, T) oils (F20) (TF12) vegetation and be present, |
| Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) S cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR P, T) Depleted Dark Surface (F8) Muck Presence (A8) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, T, U) Pedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Derit Coast Prairie (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Depleted Matrix (F3) Redox Carrier (F6) (MLRA 150B) Redox Carrier (F8) (MLRA 151) Anomalous Bright Loamy Soils (F20) (MLRA 153B) Red Parent Material (F2) (MLRA 151) Other (Explain in Remarks) Other (Explain in Remarks) Indicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic. Sandy Mucky Mineral (S1) (LRR P, S) Defit Organic (F13) (MLRA 151) Defit (F18) (MLRA 151) No Restrictive Layer (if observed): Type: Depth (inches): Depth (inches): No Remarks: | Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Stratified Layers (A5) Pepleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) I cm Muck Presence (A8) (LRR U) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): | — Anoma (MLF — Red Pa — Very S — Other (T) 3Indic wet unte | lous Bright Loamy So (A 153B) arent Material (TF2) hallow Dark Surface Explain in Remarks) ators of hydrophytic of land hydrology must it | oils (F20) (TF12) vegetation and be present, |
| Organic Bodies (A6) (LRR P, T, U) S cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F7) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Cost Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Redox Dark Surface (F13) Mart (F10) (LRR U) Depleted Dehric (F11) (MLRA 151) Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Junior Surface (F13) (LRR O, P, T) Welland hydrology must be present, unless disturbed or problematic. Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Depth (inches): No Remarks: | Organic Bodies (A6) (LRR P, T, U) S cm Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depthe do Dark Surface (F6) Depleted Dark Surface (F7) Redox Dark Surface (F7) Depleted Dark Surface (F7) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Umbric Surface (F13) (LRR P, T, U) Delta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 144) Anomalous Bright Loamy Soils (F20) (MLRA 150B) Type: Depth (inches): | (MLF Red Pa Very S Other (T) ³ Indic wet unlo | AA 153B) Arent Material (TF2) And Material (TF2) And Material (TF2) And Material (TF2) And Material (TF2) Ators of hydrophytic of the company of the company And hydrology must in the company of | (TF12) vegetation and be present, |
| | | — Red Pa — Very S — Other (T) ³ Indic wet unle | arent Material (TF2) hallow Dark Surface Explain in Remarks) ators of hydrophytic v land hydrology must ess disturbed or prob | vegetation and be present, |
| 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Thick Dark Surface (A12) Thick Dark Surface (A13) Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Jenical Coast Prairie Redox (A16) Umbric Surface (F13) (LRR P, T, U) wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Restrictive Layer (if observed): Type: Depth (inches): Depth (inches): No Remarks: | i cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, Umbric Surface (F13) (LRR P, T, U) Delta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 144) Anomalous Bright Loamy Soils (F20) (MLRA 150B) Type: Depth (inches): | Other (T) ³ Indic wet unle | Explain in Remarks) ators of hydrophytic v land hydrology must ess disturbed or prob | vegetation and be present, |
| Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soll Present? Depth dead of the dead of the surface (A12) Depth (Inches): Depth (Inches): Depth (| Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): | T) ³ Indic wet unle | ators of hydrophytic v land hydrology must ess disturbed or prob | vegetation and be present, |
| Thick Dark Surface (A12) | Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): | wet unio 9 A) | land hydrology must ess disturbed or prob | be present, |
| Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U) wetland hydrology must be present, and y Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) unless disturbed or problematic. Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No | Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A, 150B) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 14: Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 14: Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): | wet unio 9 A) | land hydrology must ess disturbed or prob | be present, |
| Sandy Gleyed Matrix (S4) | Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A, 150B) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 14: Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 14: Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): | 9A) | | lematic. |
| Sandy Redox (S5) | Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): | | , 153D) | |
| Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): | Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLR Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): | | , 153D) | |
| Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soll Present? Yes No Remarks: | Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): | | · | |
| Type: | Type: Depth (inches): | | | |
| Depth (inches): No | Depth (inches): | } | | |
| Remarks: | | Liveral Call | December Van II | No. |
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WETLAND DETERMINATION DATA FORM - FASTER MOVERTAINS and Pleating

| Project/Site: Purple Line / River Road City/o | County: College Park Sampling Date: 5/14/13 State: MD Sampling Point: W079-WTP |
|---|--|
| Applicant/Owner: MTA | State: MD Sampling Point: W079-WTP |
| | on, Township, Range: |
| Landform (hillslope, terrace, etc.): Depression Local rel | lief (concave convex none): (Oncove Since (%): |
| Subregion (LRR or MLRA): MLRA 149A Lat: | |
| Soil Map Unit Name: Aguasco-wban land complex, 0- | Long: Datum: |
| () | |
| Are climatic / hydrologic conditions on the site typical for this time of year? | |
| Are Vegetation, Soil, or Hydrology significantly disturbed. | rbed? No Are "Normal Circumstances" present? Yes / No No |
| Are Vegetation, Soil, or Hydrology naturally problem | atic? N (If needed, explain any answers in Remarks.) |
| SUMMARY OF FINDINGS – Attach site map showing san | npling point locations, transects, important features, etc. |
| Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No Yes No No | Is the Sampled Area within a Wetland? Yes No |
| Remarks: (lose & depression with sparse herbaceous vege due to presence of bottles and other voluse, is well as con of wetland, but outlet is restricted/blocked due to photo looking south at plot | etation. Appears to be associated whole have site talpa at Honey locust. Culvert present just downships bern, causing water to pour in wetland. |
| HYDROLOGY | |
| Wetland Hydrology Indicators: | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is required; check all that apply) | Surface Soil Cracks (B6) |
| Surface Water (A1) True Aquatic Plants | (B14) Sparsely Vegetated Concave Surface (B8) |
| High Water Table (A2) Hydrogen Sulfide Oc | |
| | res on Living Roots (C3) Moss Trim Lines (B16) |
| Water Marks (B1) Presence of Reduce | |
| | on in Tilled Soils (C6) Crayfish Burrows (C8) |
| Drift Deposits (B3) Thin Muck Surface (I | |
| Algal Mat or Crust (B4) Other (Explain in Re Iron Deposits (B5) | |
| Inundation Visible on Aerial Imagery (B7) | Geomorphic Position (D2) Shallow Aquitard (D3) |
| Water-Stained Leaves (B9) | Microtopographic Relief (D4) |
| Aquatic Fauna (B13) | FAC-Neutral Test (D5) |
| Field Observations: | |
| Surface Water Present? Yes No Depth (inches): | Nove |
| Water Table Present? Yes No Depth (inches): | 715" |
| Saturation Present? Yes No Depth (inches): | >15" Wetland Hydrology Present? Yes X No |
| (includes capillary fringe) | anione in an action of the state of the stat |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro | evious inspections), if available: |
| Remarks: | |
| | |
| St. below any precip during Mar & Apr | |
| | |
| | THE REPORT OF THE PARTY CONTRACTOR AND ADDRESS OF THE PARTY OF THE PAR |
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VEGETATION (Four Strata) - Use scientific names of plants.

| ee Stratum (Plot size:) | Absolute | Dominant | | Dominance Test worksheet | | |
|---|----------------|--------------|------------|--|--|-----------------|
| | | Species? | | Number of Dominant Species | | |
| Acer ribian | - 35 | | FAC | That Are OBL, FACW, or FAC |): | (A) |
| Catalan species | <u> 40</u> | 4 | FACU | Total Number of Dominant | 9 | |
| Liquidamber styruction | 30 | 4- | FAC | Species Across All Strata: | | (B) |
| Whos american | 40 | <u> </u> | FACW | Percent of Dominant Species | 111 | |
| U. As servered | 40 | 1 = = | | That Are OBL, FACW, or FAC | | (A/B |
| | | | | | | _ ` |
| | | | | Prevalence Index workshee | - | |
| | | | | Total % Cover of: | | |
| | 135 | = Total Cov | /er | OBL species | x 1 = | 1,101 |
| pling/Shrub Stratum (Plot size: 301) | | 7010100 | | FACW species | x 2 = | |
| Ulmus american | 40 | <u> </u> | FACW | FAC species | x 3 = | |
| Cutulpa speciusa | 32 | Y | FACU | FACU species | | |
| Salix nigan | 3 | | OBL. | UPL species | | |
| Quencos alba | 5 | | FACU | Column Totals: | | |
| | | | MOW | Ocidini Totals. | () | (D) |
| | | | | Prevalence Index = B/A | \= | |
| | | | | Hydrophytic Vegetation Ind | icators: | |
| | | | | 1 - Rapid Test for Hydron | | |
| | | | | 2 - Dominance Test is >5 | | |
| 3 | | | | 3 - Prevalence Index is ≤ | | |
| | | | | | | |
| 361 | <u>86</u> | = Total Co | /er | 4 - Morphological Adapta data in Remarks or or | itions" (Provide s n a separate she | upportin et) |
| erb Stratum (Plot size: 30' | 2 | V | | Problematic Hydrophytic | | |
| Allium vinente | <u>- ప్</u> | | FACU | i iobiematic riyarophytic | vegetation (LA) | Jiaiii) |
| cutal for speciosa | 3 | 4 | FACU | 10 10 10 10 10 10 10 | | |
| And Andrew Star Statements | | | | Indicators of hydric soil and was be present, unless disturbed | wetiand nydrolog or problematic | y must |
| | and Other and | | | Definitions of Four Vegetati | | ALC: |
| | henu | IIII ONG HIM | C140011800 | Definitions of Four Vegetati | on Strata. | |
| | | | | Tree Woody plants, excludi | | |
| 1.0000000000000000000000000000000000000 | | | | more in diameter at breast he | eight (DBH), rega | rdless o |
| | | | | height. | | |
| Janes Committee of the | | | | Sapling/Shrub – Woody plan | | |
| | | | | than 3 in. DBH and greater th | an 3.28 ft (1 m) | tall. |
| - STANISH - Property - St | | | | Herb - All herbaceous (non- | voody) plants, re | gardless |
| . Milear law-school | | | | of size, and woody plants les | | |
| | | | | All | m Here | 00.61 |
| and Wine Stratum (Blot size: 301 | _6 | = Total Co | ver | Woody vine – All woody vine height. | es greater than 3 | .28 II III |
| body vine Stratum (Flot size) | - | · · | Cla | | | |
| Toxiculation indican | $-\frac{t}{2}$ | | TAC | - A | | |
| (in, cera japanica | <u> </u> | <u> </u> | FAC | | | |
| | ZHELL | un a i | 51 6 90 | 9 1111 - 1141 1 | | |
| | | | | | | |
| | | | | Hydrophytic Vegetation | , | |
| | | | | Present? Yes | ∼ No | |
| | 32 | = Total Co | ver | | | _ |
| emarks: (Include photo numbers here or on a separa | | - Total Co | vei | | | |
| smarks. (moldde photo hambers here of on a separa | to shoot. | | | | | |
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| Profile Desc | ription: (Describe | to the dept | h needed to docun | nent the i | ndicator | or confirm | the absence | of indicato | rs.) | |
|--------------|---|-------------|-------------------------------|---|-------------------|-------------------|---------------------------|---------------|----------------------|--------------------------|
| Depth | Matrix | | Redox | x Features | <u> </u> | | | | | |
| (inches) | Color (moist) | % | Color (moist) | % | Type ¹ | _Loc ² | <u>Texture</u> | | Remarks | |
| 0-6 | 2,5432 | 90 | 10 m 4/6 | 10 | | | Loam | Root let | 5 present | |
| 6-15 | 10 / 6/2 | 65 | 109-618 | 30 | C | M | 510 | GACIN | ic streaking | n.a |
| | 10 2 3 1 1 | 5 | 7 | | | | · | 3 | > 11 (32) |) |
| | 1000 311 | | | | | | | | | |
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| | | | | | | | | | | |
| ¹Type: C=Co | oncentration, D=Dep | letion. RM= | Reduced Matrix, MS | ====================================== | Sand Gr | ains. | ² Location: PL | =Pore Linin | g. M=Matrix. | |
| Hydric Soil | | | Trouble Individual Individual | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | 04.10 0. | <u></u> | Indica | tors for Pr | oblematic Hyd | ric Soils ³ : |
| Histosol | | | Dark Surface | (S7) | | | 2 | cm Muck (A | (10) (MLRA 14 | 7) |
| | oipedon (A2) | | Polyvalue Be | | ce (S8) (N | /ILRA 147, | | | Redox (A16) | , |
| Black Hi | | | Thin Dark Su | | | | · — | (MLRA 14 | | |
| Hydroge | n Sulfide (A4) | | Loamy Gleye | d Matrix (| F2) | | P | iedmont Flo | odplain Soils (F | 19) |
| | d Layers (A5) | | Depleted Mat | | | | | (MLRA 13 | | |
| | ick (A10) (LRR N) | | Redox Dark | | | | | | laterial (TF2) | |
| | d Below Dark Surfac | e (A11) | Depleted Dar | | | | | | Dark Surface (| (IF12) |
| . — | ark Surface (A12) Mucky Mineral (S1) (I | DD N | Redox Depre Iron-Mangan | | | I DD N | _ 0 | itner (Expiai | n in Remarks) | |
| | 147, 148) | _rxr n, | MLRA 13 | | es (F12) (| LKK N, | | | | |
| | Gleyed Matrix (S4) | | Umbric Surfa | • | MLRA 13 | 36, 122) | 3Ind | icators of hy | drophytic vege | tation and |
| | Redox (S5) | | Piedmont Flo | | | | | | ology must be p | |
| | Matrix (S6) | | _ | | (*) | (| | - | ed or problem | |
| | Layer (if observed): | | | | | | | | | |
| Туре: | NONE | | | | | | | | , | |
| Depth (in | ches): MA | | | | | | Hydric Soil | Present? | Yes | No |
| Remarks: | ······································ | | | | | | | | | |
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Atlantic Gulf Coastal Plain WETLAND DETERMINATION DATA FORM - Exercise Missing Adams of Piedmont

| Project/Site: Purple Line/ Rism Road City. Applicant/Owner: MTA | County: College Park Sampling Date: 5/14/13 |
|---|---|
| Applicant/Owner: MTA | State: Sampling Point: \w79-UTF |
| | |
| Investigator(s): | relief (concave, convex, none); None Slone (%); < |
| Subregion (LRR or MLRA): MLRA-149A Lat: | |
| Subjection (ETT). Proprieta Lat. | Long: Datum: NWI classification: N/A |
| | · · · · · · · · · · · · · · · · · · · |
| Are climatic / hydrologic conditions on the site typical for this time of year? | |
| Are Vegetation, Soil, or Hydrology significantly dist | , |
| Are Vegetation, Soil, or Hydrology naturally problem | matic? ${\cal N}$ (If needed, explain any answers in Remarks.) |
| SUMMARY OF FINDINGS – Attach site map showing sa | impling point locations, transects, important features, etc. |
| Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No Yes No | Is the Sampled Area within a Wetland? Yes No |
| Remarks: ph#27-lowking Sat plot. Area a of old refuse and catelyn, Honey caust. | preses to be old home site due to presence |
| HYDROLOGY | |
| Wetland Hydrology Indicators: | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is required; check all that apply) | Surface Soil Cracks (B6) |
| Surface Water (A1) True Aquatic Plants | |
| High Water Table (A2) Hydrogen Sulfide C | |
| | eres on Living Roots (C3) Moss Trim Lines (B16) |
| Water Marks (B1) Presence of Reduction Sediment Deposits (B2) | |
| Sediment Deposits (B2) Recent Iron Reduc Drift Deposits (B3) Thin Muck Surface | tion in Tilled Soils (C6) Crayfish Burrows (C8) (C7) Saturation Visible on Aerial Imagery (C9) |
| Algal Mat or Crust (B4) Other (Explain in R | |
| Iron Deposits (B5) | Geomorphic Position (D2) |
| Inundation Visible on Aerial Imagery (B7) | Shallow Aquitard (D3) |
| Water-Stained Leaves (B9) | Microtopographic Relief (D4) |
| Aquatic Fauna (B13) | FAC-Neutral Test (D5) |
| Field Observations: | |
| Surface Water Present? Yes No Depth (inches): | NONE |
| Water Table Present? Yes No Depth (inches): | 713" |
| Saturation Present? Yes No Depth (inches): | ンレー Wetland Hydrology Present? Yes No |
| (includes capillary fringe) | |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, p | revious inspections), if available: |
| Demodes | |
| Remarks: | |
| | A = A |
| No hydrologic indicators evic | text |
| | |
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| Tree Stratum (Plot size: 301 1. Gledits in trincinthus | 60 | Dominant Species? | Status FAC | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: (A) |
|---|----------|----------------------|---------------------|--|
| 3. Juglans night | 15 | | PACU | Total Number of Dominant Species Across All Strata: (B) |
| 4 | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B) |
| 7 | | | | Prevalence Index worksheet: |
| Sapling/Shrub Stratum (Plot size:) 1 | | = Total Cov | FACU | FACW species 11 $x = 22$ FAC species 123 $x = 369$ |
| 2. Gladitsin tracenthus 3. Lunicera muchii | <u>5</u> | 7 | FAC | FACU species 19 $\times 4 = 476$ UPL species 13 $\times 5 = 65$ |
| 4. Quencos yobra 5. Catalan speciosa | 3 | | FACU | Column Totals: 266 (A) 932 (B) Prevalence Index = B/A = 3.50 |
| 6. Quencus phellos 7. Diospyrus virginione 8. | 2 | , | FAC | Hydrophytic Vegetation Indicators: |
| 9 | | | | 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting |
| Herb Stratum (Plot size: 301) 1. Gledrome bedracen | 32 | = Total Cov | FACU | data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) |
| 2. Cinn wondinger 3. Pou 5p. | 7 7 | | FACIO n/a | ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 4. Galium a prince 5. Alliasta peteoluta 6. Arum maculatum 7. | 3 | | FACU FACW DPL | Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. |
| 8 | | | | Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| 10 | | = = | | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. |
| Woody Vine Stratum (Plot size: 30) | 12 | = Total Cov | | Woody vine – All woody vines greater than 3.28 ft in height. |
| 1. Lunicera japanica 2. | 50 | <u> </u> | FAC_ | |
| 4 | | | | Hydrophytic Vegetation Present? Yes No |
| 6Remarks: (Include photo numbers here or on a separate | | = Total Cov | ver | Present? Yes No |
| M L- M/20 Test la tracay | alance | index | India | cates non-hydrophytic veg. |
| Presence of Gleditsia most vather than a result of | likely | due to | plant | ing assoc. w/ old homesite |

| | inplion. (Describe | to the dep | th needed to docur | nent the in | dicator | or confirm | the absence | of indicators.) | |
|--------------------|----------------------------------|------------|------------------------------|-------------|-------------------|------------------|---------------------------|--|-------------|
| Depth | Matrix | | | x Features | | | | | |
| (inches) | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | Texture | Remark | is |
| 0-7 | 10 m 2/1 | 100 | | | | | Salo | | |
| 7-10 | 10 m 5/3 | 80 | 10 m 4/4 | 5 | Ç | M | Lonn | U. J. D. B. | |
| *** | 10 44 2/1 | 15 | | | | | | Organic Stee | a kin |
| 10-127 | 10 40612 | 80 | 10 m 5/6 | 20 | | ^^ | Lonn | 1 | |
| 10 103 | 10 20 17 | | 10 41 210 | | | <u>M</u> | Low | | |
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| | | letion, RM | =Reduced Matrix, M | S=Masked | Sand Gr | ains. | ² Location: Pl | _=Pore Lining, M≃Matri | x |
| Hydric Soil | | | | | | | | ators for Problematic | · · |
| Histosol | | | Dark Surface | | | | | cm Muck (A10) (MLR/ | |
| | pipedon (A2) | | Polyvalue Be | | | | 148) C | Coast Prairie Redox (A1 | 6) |
| | istic (A3) en Sulfide (A4) | | Thin Dark Su Loamy Gleye | | | 147, 148) | | (MLRA 147, 148) Piedmont Floodplain So | ile (E10) |
| | d Layers (A5) | | Depleted Ma | | -) | | — ' | (MLRA 136, 147) | 113 (1 19) |
| | uck (A10) (LRR N) | | Redox Dark | | 6) | | F | Red Parent Material (TF | (2) |
| | d Below Dark Surfac | e (A11) | Depleted Da | | | | | ery Shallow Dark Surfa | |
| | ark Surface (A12) | | Redox Depre | | | | c | Other (Explain in Remai | ·ks) |
| | Mucky Mineral (S1) (I | RR N, | Iron-Mangan | | s (F12) (| LRR N, | | | |
| | A 147, 148) | | MLRA 13 | | 41 DA 46 | 0.400\ | 3, | | |
| | Gleyed Matrix (S4) Redox (S5) | | Umbric Surfa Piedmont Flo | | | | | licators of hydrophytic vetland hydrology must | - |
| | i Matrix (S6) | | riedinontri | ouplain Sc | 115 (1 15) | (MILITAL I | | nless disturbed or prob | |
| | Layer (if observed): | _ | | | | | | micoo distance of pro- | nematio. |
| | Layei (ii observeu). | | | | | | | | |
| 1 | | | | | | | | | A |
| Туре: | NoN | E | | | | | Hydric Soil | Present? Yes | No X |
| Type: Depth (in | | E | | | 59 | _ | Hydric Soil | Present? Yes | No X |
| Туре: | NoN | E | | | 29 | · - | Hydric Soil | Present? Yes | No X |
| Type: Depth (in | NoN | E | | | 9 | | Hydric Soil | Present? Yes | No No |
| Type: Depth (in | NoN | E | | | 29 | | Hydric Soil | Present? Yes | No No |
| Type: Depth (in | NoN | E | | | 13 | | Hydric Soil | Present? Yes | No X |
| Type: Depth (in | NoN | E | | | 19 | | Hydric Soil | Present? Yes | No X |
| Type: Depth (in | NoN | E | | | 5 | | Hydric Soil | Present? Yes | No No |
| Type: Depth (in | NoN | E | | | 12 | - | Hydric Soil | Present? Yes | No No |
| Type: Depth (in | NoN | E | | | 24 | | Hydric Soil | Present? Yes | No |
| Type: Depth (in | NoN | E | | | E4 | | Hydric Soil | Present? Yes | No No |
| Type: Depth (in | NoN | E | | | | | Hydric Soil | Present? Yes | No No |
| Type: Depth (in | NoN | E | | | | | Hydric Soil | Present? Yes | No No |
| Type: Depth (in | NoN | E | | | 24 | | Hydric Soil | Present? Yes | No No |
| Type: Depth (in | NoN | E | | | 24 | | Hydric Soil | Present? Yes | No No |
| Type: Depth (in | NoN | E | | | | | 1 | Present? Yes | No No |
| Type: Depth (in | NoN | E | | | | | Hydric Soil | Present? Yes | No No |
| Type: Depth (in | り v N ches): | E | | | | | 1 | Present? Yes | No No |
| Type: Depth (in | り v N ches): | <u>E</u> | | | | | 1 | Present? Yes | No No |
| Type: Depth (in | り v N ches): | <u>E</u> | | | | | 1 | Present? Yes | No No |
| Type: Depth (in | り v N ches): | <u>E</u> | | | | | 1 | Present? Yes | No No |
| Type: Depth (in | り v N ches): | <u>E</u> | | | | | 1 | Present? Yes | No No |
| Type: Depth (in | り v N ches): | <u>E</u> | | | | | 1 | | No No |
| Type: Depth (in | り v N ches): | <u>E</u> | | | | | 1 | Present? Yes | No No |

WETLAND DETERMINATION DATA FORM - Estere Mountains and Riedmans

| 1 1 1 1 ATT 453 | C 11 - 0 1 · 10c |
|--|--|
| Project/Site: Purple Line/MD 173 City/C Applicant/Owner: MTA | county: Glege Park PG Sampling Date: 5/19/13 |
| Applicant/Owner: MIT | State: Sampling Point: W80-W/ |
| Investigator(s): 5. Sipple, D. Radgers A. Canska Section | |
| Landform (hillslope, terrace, etc.): Local reli | ief (concave, convex, none): Slope (%): Slope |
| | Long: Datum: |
| Soil Map Unit Name: Sassafras-urbanland complex, 1 | 0-5% slopes NWI classification: DEM1C |
| Are climatic / hydrologic conditions on the site typical for this time of year? Y | 'es No (If no, explain in Remarks.) |
| Are Vegetation, Soil, or Hydrology significantly distur | |
| Are Vegetation, Soil, or Hydrology naturally problems | |
| SUMMARY OF FINDINGS - Attach site map showing sam | |
| Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: | Is the Sampled Area within a Wetland? Yes No |
| Ph 28-Looking S-SE | 8 # |
| Slightly below and precip in Mars Apr 150. depression in powerline ROW | |
| HYDROLOGY | |
| Wetland Hydrology Indicators: | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is required; check all that apply) | Surface Soil Cracks (B6) |
| Surface Water (A1) True Aquatic Plants (| |
| High Water Table (A2) Hydrogen Sulfide Od | |
| Saturation (A3) Oxidized Rhizosphere | |
| Water Marks (B1) Presence of Reduced | d Iron (C4) Dry-Season Water Table (C2) |
| Sediment Deposits (B2) Recent Iron Reductio | on in Tilled Soils (C6) Crayfish Burrows (C8) |
| Drift Deposits (B3) Thin Muck Surface (C | |
| Algal Mat or Crust (B4) Other (Explain in Rer | |
| Iron Deposits (B5) | Geomorphic Position (D2) |
| Inundation Visible on Aerial Imagery (B7) | ✓ Shallow Aquitard (D3) |
| Water-Stained Leaves (B9) Aquatic Fauna (B13) | Microtopographic Relief (D4) |
| Field Observations: | FAC-Neutral Test (D5) |
| Surface Water Present? Yes No Depth (inches): | ٤'' |
| Water Table Present? YesNo Depth (inches): | |
| Saturation Present? Yes No Depth (inches): | Wetland Hydrology Present? Yes No |
| (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre | evious inspections), if available: |
| | |
| Remarks: | |
| perched over clayey moterial | |
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VEGETATION (Four Strata) – Use scientific names of plants.

| | Absolute | Dominant | Indicator | Dominance Test worksheet: |
|--|----------|-------------|-----------|--|
| Tree Stratum (Plot size:) | % Cover | Species? | Status | Number of Dominant Species |
| 1 | | | | That Are OBL, FACW, or FAC: (A) |
| 2 | | | | Total Number of Dominant |
| 3 | | | | Species Across All Strata: (B) |
| 4 | | | | Percent of Dominant Species |
| 5 | | | | That Are OBL, FACW, or FAC: (A/B) |
| 6 | | | | Prevalence Index worksheet: |
| 7 | | | | |
| 8 | | | | Total % Cover of: Multiply by: |
| | | = Total Cov | er | OBL species x 1 = |
| Sapling/Shrub Stratum (Plot size:) | | | | FACW species x 2 = |
| 1. | | | | FAC species x 3 = |
| 2 | | | | FACU species x 4 = |
| 3 | | | | UPL species x 5 = |
| 4 | | | | Column Totals: (A) (B) |
| 5 | | | | Prevalence Index = B/A = |
| 6 | | | | Hydrophytic Vegetation Indicators: |
| 7 | | | | |
| 8 | | | | 2 - Dominance Test is >50% |
| 9 | | | | |
| 10 | | | | 3 - Prevalence Index is ≤3.01 |
| | | = Total Co | /er | 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) |
| Herb Stratum (Plot size:) | | | | Problematic Hydrophytic Vegetation¹ (Explain) |
| 1. Juneus etters | 25 | 1_ | DBL | Troblematic rijaroprijite vegetation (_ripiam) |
| 2. Juneus germatus | 20 | 7_ | OBL | ¹ Indicators of hydric soil and wetland hydrology must |
| 3. Carex unpinaidea | 17 | 4 | FACW | be present, unless disturbed or problematic. |
| 4. Carex sp. | 45 | <u> </u> | Na | Definitions of Four Vegetation Strata: |
| 5. Eleocharis obtusa | 12 | 4 | OBL | |
| 6. Runex Crispus | _ 5 | | FAC | Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of |
| 7. Ludwigia palustris | 8 | Y | OBL | height. |
| 8. Millians | | | | Carling/Objects Wanderslands available views land |
| a Fostuca matouse | 5 | | FACU | Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| 10. Solidago sa | 15 | Y | n/a | |
| 11. Apocyolum Cannabinum | 3 | / | FACU | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. |
| 12. | | | 1 | of size, and woody plants less than 5.20 it tall. |
| | 1.55 | = Total Co | ver | Woody vine – All woody vines greater than 3.28 ft in |
| Woody Vine Stratum (Plot size:) | | | | height. |
| 1 | | | | 40.4 |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | Hydrophytic Vegetation |
| 6. | | | | Present? Yes No No |
| | | = Total Co | ver | |
| Remarks: (Include photo numbers here or on a separate | sheet.) | - | | |
| Remarks: (Include photo numbers here or on a separate Carly season - many species un species without indicator sta | -last | alla | | |
| early season - many species out | CAGIU 10 | 1 A A | (| 1: 50.010 |
| nesis ithout indicator sta | hus ex | duded | tron | dominance Care. |
| shears miner | | | | |
| | | | | |
| | | | | |
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| | | | | |

| Profile Desc | ription: (Describe | to the dep | th needed to docum | nent the ir | ndicator | or confirr | n the absenc | e of indicate | ors.) | |
|---------------------------------|---|------------|------------------------------|-------------|-------------------|------------------|----------------|----------------|------------------------------------|--------------|
| Depth | Matrix | | Redox | k Features | | | | | • | |
| (inches) | Color (moist) | <u>%</u> | Color (moist) | % | Type ¹ | Loc ² | <u>Texture</u> | | Remarks | |
| 0-6 | 164R4/2 | 95 | 7.54R4/6 | _5_ | | M | 511 | | ts present | |
| 6-12+ | 104R6/6 | 90 | 7.5 YR3/4 | 10 | <u>C</u> | M | 5 | grave | el extens | ve |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | - 1 | | | | | | · - | |
| - 30% | | | | | | | | - | | |
| 19 | | | | | | | | , | | |
| 4 | | | | | | | | | | |
| ¹ Type: C=Cc | ncentration, D=Dep | letion, RM | =Reduced Matrix, MS | =Masked | Sand G | ains. | | | ng, M=Matrix. | |
| Hydric Soil I | 100 | | David Confe | (07) | | | | | roblematic Hy | |
| Histosol Histic Ep | ipedon (A2) | | Dark Surface Polyvalue Be | | e (S8) (I | MLRA 147 | . 148) | | A10) (MLRA 1 Redox (A16) | 47) |
| Black His | stic (A3) | | Thin Dark Su | | | | , 110, | (MLRA 14 | | |
| | n Sulfide (A4) | | Løamy Gleye | | - 2) | | _ | | oodplain Soils | (F19) |
| | Layers (A5) | | Depleted Mat | | c) | | | (MLRA 13 | | |
| | ck (A10) (LRR N) l Below Dark Surface | e (A11) | Redox Dark S Depleted Dar | | | | | | Material (TF2) v Dark Surface | (TE12) |
| | rk Surface (A12) | J (7111) | Redox Depre | | | | | | in in Remarks) | |
| | ucky Mineral (S1) (L | .RR N, | Iron-Mangane | | | LRR N, | | ` ' | | |
| | 147, 148) | | MLRA 136 | • | | | 9. | | | |
| | leyed Matrix (S4) edox (S5) | | Umbric Surfa | | | | | | ydrophytic veg | |
| | Matrix (S6) | | Fledition(Flo | ouplain St | אווג (דוש) | (WILKA I | - | | ology must be bed or problen | • |
| | | | | | | | | | | iutio. |
| Restrictive L | ayer (if observed): | | | | | | | unicss distu | | |
| Restrictive L | ayer (if observed): | | | | | | | uriicaa diatui | | / |
| Type: | | | | | | | | il Present? | Yes | No |
| Type: | | | | | | | | | | No |
| Type: Depth (inc | | | | | | | | | | / No |
| Type: Depth (inc Remarks: | hes): | | | | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | y day @ | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16! | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |
| Type: Depth (inc Remarks: | hes): | | | ~ 16" | | | | | | No |

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

| 0 11: 110 107 | |
|--|---|
| Project/Site: Puple Line/ MW 193 City/C | State: MD Sampling Point: 1280-UPI |
| Applicant/Owner: MTA | State: MD Sampling Point: LDS 0 - UPI |
| Investigator(s): S. 5 pple, D. Rodgers, A. Cromska Section | |
| Landform (hillslope, terrace, etc.): and slope Local rel | lief (concave, convex, none): CONVEX Slope (%): 2-5 |
| Subregion (LRR or MLRA): MLRA 149A Lat: | Long: Datum: |
| Soil Map Unit Name: Sassafras - Urban land Complex, 0- | 5% Slopes NWI classification: N/A |
| Are climatic / hydrologic conditions on the site typical for this time of year? | res No (If no, explain in Remarks.) |
| | rbed? No Are "Normal Circumstances" present? Yes No |
| Are Vegetation, Soil, or Hydrology naturally problem | |
| | mpling point locations, transects, important features, etc. |
| Hydrophytic Vegetation Present? Yes No Yes No Wetland Hydrology Present? Yes No | Is the Sampled Area within a Wetland? Yes No |
| UPL meadow in powerline Row | |
| PHER 9 looking S/SE @UPL, WOSO IN | n back grand |
| HYDROLOGY | |
| Wetland Hydrology Indicators: | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is required; check all that apply) | Surface Soil Cracks (B6) |
| Surface Water (A1) True Aquatic Plants | (B14) Sparsely Vegetated Concave Surface (B8) |
| High Water Table (A2) Hydrogen Sulfide Od | |
| | res on Living Roots (C3) Moss Trim Lines (B16) |
| Water Marks (B1) Presence of Reduce | |
| Sediment Deposits (B2) Recent Iron Reduction | |
| Drift Deposits (B3) Thin Muck Surface ((| |
| Algal Mat or Crust (B4) Other (Explain in Rel Iron Deposits (B5) | |
| Inundation Visible on Aerial Imagery (B7) | Geomorphic Position (D2) Shallow Aquitard (D3) |
| Water-Stained Leaves (B9) | Microtopographic Relief (D4) |
| Aquatic Fauna (B13) | FAC-Neutral Test (D5) |
| Field Observations: | |
| Surface Water Present? Yes No Depth (inches): | 10NG |
| Water Table Present? Yes No Depth (inches): | <u>•17,1</u> |
| Saturation Present? Yes No Depth (inches): | Wetland Hydrology Present? Yes No |
| (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre | evious inspections), if available: |
| | |
| Remarks: | |
| | |
| No hydrologic indicators presen | * |
| /) | , 1 |
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Sampling Point: 4/0 80-UTP-1

| Figure 1 Court profession 1 | Absolute Dominant Indicato | Dominance Test worksheet: |
|--|----------------------------|--|
| Tree Stratum (Plot size:) 1) | % Cover Species? Status | Number of Dominant Species That Are OBL, FACW, or FAC: (A) |
| 2 | | Total Number of Dominant Species Across All Strata: (B) |
| 4. NONE 5 | | |
| 6 | | Prevalence Index worksheet: |
| 7 | | |
| 8 | | Total % Cover of: Multiply by: |
| 3.21 | = Total Cover | OBL species x 1 = |
| Sapling/Shrub Stratum (Plot size:) | | FACW species x 2 = |
| 1 | | FAC species x 3 = |
| 2 | | FACU species x 4 = |
| | THE RESERVE | UPL species x 5 = |
| 4. /VUNE | | Column Totals: (A) (B) |
| 56 | | Prevalence Index = B/A = Hydrophytic Vegetation Indicators: |
| 7 | | 1 - Rapid Test for Hydrophytic Vegetation |
| 8 | | 2 - Dominance Test is >50% |
| 9 | | <u> </u> |
| 10 | | 3 - Prevalence Index is ≤3.0¹ |
| Herb Stratum (Plot size: 301) | = Total Cover | 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) |
| 1. Anthoxanther oderstor | 70 Y FACE | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 2. Heustonia caerulca | 10 FA | |
| 3. Holcus anatus | 35 Y FACE | Indicators of hydric soil and wetland hydrology must |
| | | I DE DIESEIR, MIIESS MISMIDEM OF DIODICHIANC. |
| 4. Danunculak Sp. | | Definitions of Four Vegetation Strata: |
| | | Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of |
| 7 8 | | height. Sapling/Shrub – Woody plants, excluding vines, less |
| 9 | | than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| 11. | | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. |
| Woody Vine Stratum (Plot size: 3) | 136 = Total Cover | Woody vine – All woody vines greater than 3.28 ft in height. |
| 1 | | |
| 2. | | |
| 3 | | |
| 4 | | Hydrophytic |
| 5 | | - Vegetation |
| 6 | | Present? |
| | = Total Cover | |
| Remarks: (Include photo numbers here or on a separat | e sheet.) | |
| Troniano. (morado prioto maniporo nor o ria deparat | 3 3.1331.) | |
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| | th needed to document the indicator or confirm | and and on the control of the c |
|--|---|--|
| Depth <u>Matrix</u> | Redox Features | |
| (inches) Color (moist) % | Color (moist) % Type ¹ Loc ² | Texture Remarks |
| 0-5 104B312 100 | | L Many fine rootlets |
| 5-12+ 10 VR 5/6 100 | | L |
| 101111 | | |
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| | | |
| ¹ Type: C=Concentration D=Depletion RM= | Reduced Matrix, MS=Masked Sand Grains. | ² Location: PL=Pore Lining, M=Matrix. |
| Hydric Soil Indicators: | reduced wattry, wo-wasted daily oralls. | Indicators for Problematic Hydric Soils ³ : |
| Histosol (A1) | Dark Surface (S7) | - |
| Histosof (A1) Histic Epipedon (A2) | Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147 | 2 cm Muck (A10) (MLRA 147) |
| Black Histic (A3) | | |
| Black Histic (A3) Hydrogen Sulfide (A4) | Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2) | (MLRA 147, 148) Piedmont Floodplain Soils (F19) |
| Stratified Layers (A5) | Depleted Matrix (F3) | (MLRA 136, 147) |
| 2 cm Muck (A10) (LRR N) | Redox Dark Surface (F6) | Red Parent Material (TF2) |
| Depleted Below Dark Surface (A11) | Depleted Dark Surface (F7) | Very Shallow Dark Surface (TF12) |
| Thick Dark Surface (A12) | Redox Depressions (F8) | Other (Explain in Remarks) |
| Sandy Mucky Mineral (S1) (LRR N, | Iron-Manganese Masses (F12) (LRR N, | Other (Explain in Remarks) |
| MLRA 147, 148) | MLRA 136) | |
| Sandy Gleyed Matrix (S4) | Umbric Surface (F13) (MLRA 136, 122) | ³ Indicators of hydrophytic vegetation and |
| Sandy Redox (S5) | Piedmont Floodplain Soils (F19) (MLRA 1 | |
| Stripped Matrix (S6) | | unless disturbed or problematic. |
| Restrictive Layer (if observed): | | The state of the s |
| Type: Nove | | |
| Depth (inches): | | |
| | | I Hardele Call Davis and C. V. I. |
| | | Hydric Soil Present? Yes No |
| Remarks: | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

| Project/Site: Purale Line/ Riverdale Rd. City/O | County: Riverdale Sampling Date: 5/94/13 |
|---|---|
| Applicant/Owner: | State: MD Sampling Point: W81 - WTP |
| | ion, Township, Range: |
| , | I relief (concave, convex, none):Slope (%): |
| Landiorni (misiope, terrace, etc.): 3191100 (21 5/51/Local | Trellet (concave, convex, none): Slope (%): |
| Subregion (LRR or MLRA): MURA 149A Lat: | Long: Datum: |
| Soil Map Unit Name: Udartherts/Christiana-Downe | NWI classification: PENIA/C |
| Are climatic / hydrologic conditions on the site typical for this time of year? | |
| Are Vegetation, Soil, or Hydrology significantly distur | rbed? No No No |
| Are Vegetation, Soil, or Hydrology naturally problem | |
| SUMMARY OF FINDINGS – Attach site map showing san | |
| | |
| Hydrophytic Vegetation Present? Yes No | Is the Sampled Area |
| Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No | within a Wetland? Yes No |
| | |
| Soil is assumed hydric due. | fence so sail somples were |
| Storm water basis closed of by | fence so sail somples were |
| unable to he taked | |
| 7 200 | |
| HYDROLOGY | |
| Wetland Hydrology Indicators: | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is required; check all that apply) | Surface Soil Cracks (B6) |
| Surface Water (A1) Aquatic Fauna (B13) | Sparsely Vegetated Concave Surface (B8) |
| High Water Table (A2) Marl Deposits (B15) (LR | RR U) Drainage Patterns (B10) |
| Saturation (A3) Hydrogen Sulfide Odor (| (C1) Moss Trim Lines (B16) |
| Water Marks (B1) Oxidized Rhizospheres a | along Living Roots (C3) Dry-Season Water Table (C2) |
| Sediment Deposits (B2) Presence of Reduced Iron | |
| Drift Deposits (B3) Recent Iron Reduction in | n Tilled Soils (C6) |
| Algal Mat or Crust (B4) Thin Muck Surface (C7) | Geomorphic Position (D2) |
| Iron Deposits (B5) Other (Explain in Remar | rks) Shallow Aquitard (D3) |
| Inundation Visible on Aerial Imagery (B7) | FAC-Neutral Test (D5) |
| Water-Stained Leaves (B9) | Sphagnum moss (D8) (LRR T, U) |
| Field Observations: | , " |
| Surface Water Present? Yes No Depth (inches): | |
| Water Table Present? Yes No/ Depth (inches): | N/A |
| Saturation Present? Yes No/ Depth (inches): | Wetland Hydrology Present? Yes No |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro- | evious inspections), if available: |
| | |
| Remarks: Surface water was observed from out | -side fenced area, Soil samples/pits |
| were not taken due to lack of according | access they saturation and water laber levels |
| were not able to be assessed | access, thus saturation of water table levels |
| factory and | ** |
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| ree Stratum (Plot size: 301) | Absolute Dominant Indicato % Cover Species? Status | Number (Desired Co.) |
|--|---|--|
| | | That Are OBL, FACW, or FAC: (A) |
| · | | Total Number of Dominant |
| | | |
| | | |
| | | Yan in a second |
| | . 10 | Prevalence Index worksheet: |
| | | Total % Cover of: Multiply by: |
| | = Total Cover | OBL species x 1 = |
| 50% of total cover: | 20% of total cover: | FACW species x 2 = |
| apling/Obruh Otratum /Distrature 3 | | FAC species x 3 = |
| Acar rearndo | 5 K FAC | |
| Acer resource | 5 / FAC | UPL species x 5 = |
| | | Column Totals: (A) (B) |
| | | Prevalence Index = B/A = |
| | | Hydrophytic Vegetation Indicators: |
| | | 1 - Rapid Test for Hydrophytic Vegetation |
| | | - |
| | | - 3 - Prevalence Index is ≤3.01 |
| erb Stratum (Plot size: 3.0 50% of total cover:) | Total Cover | Problematic Hydrophytic Vegetation (Explain) |
| erb Stratum (Plot size: 3.01) | 100 | Indicators of hydric soil and wetland hydrology must |
| - year Day - | | be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: |
| | | Too Manda lands and the state of the Committee of the Com |
| | | Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height. |
| | | - 1 |
| | | Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| | | Herb – All herbaceous (non-woody) plants, regardles of size, and woody plants less than 3.28 ft tall. |
| 0 | | Woody vine – All woody vines greater than 3.28 ft in height. |
| 2 | | _ Might. |
| | Total Cover | |
| | 20% of total cover: | |
| Voody Vine Stratum (Plot size: 3 0) | | |
| · | | _ |
| · NONE | | _ |
| 700.4 | | _ [|
| · | | _ |
| | | - Hydrophytic |
| | = Total Cover | Vegetation |
| 50% of total cover: | 20% of total cover: | Present? Yes No No |
| emarks: (If observed, list morphological adaptations b | | <i>k</i> |
| | , | |
| | | |
| | | |
| | | |

Sampling Point: W\$1 - WTP |

| Daniel. | cription: (Describe to the | | |
|---|------------------------------|--|--|
| Depth (inches) | Matrix Color (moist) % | Redox Features Color (moist) % Type Loc | Texture Remarks |
| 111111111111111111111111111111111111111 | | Color (IIIost) 76 Type Loc | 2 Texture Remarks |
| | | | |
| | | | |
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| | | | |
| | | | |
| ¹Type: C≃Co | oncentration, D≂Depletion, I | RM=Reduced Matrix, MS=Masked Sand Grains. | ² Location: PL=Pore Lining, M=Matrix. |
| Hydric Soil I | Indicators: (Applicable to | all LRRs, unless otherwise noted.) | Indicators for Problematic Hydric Solls ³ : |
| Histosol | (A1) | Polyvalue Below Surface (S8) (LRR S | - |
| | pipedon (A2) | Thin Dark Surface (S9) (LRR S, T, U) | 2 cm Muck (A10) (LRR S) |
| | stic (A3) | Loamy Mucky Mineral (F1) (LRR O) | Reduced Vertic (F18) (outside MLRA 150A,B) |
| | n Sulfide (A4) | Loamy Gleyed Matrix (F2) | |
| | Layers (A5) | Depleted Matrix (F3) | Piedmont Floodplain Soils (F19) (LRR P, S, T) |
| | Bodies (A6) (LRR P, T, U) | Redox Dark Surface (F6) | Anomalous Bright Loamy Soils (F20) |
| | icky Mineral (A7) (LRR P, T | | (MLRA 153B) |
| | esence (A8) (LRR U) | | Red Parent Material (TF2) |
| | ck (A9) (LRR P, T) | Redox Depressions (F8) | Very Shallow Dark Surface (TF12) |
| | d Below Dark Surface (A11) | Mari (F10) (LRR U) | Other (Explain in Remarks) |
| | ark Surface (A12) | | O D TO Broad of the control of the c |
| | rairie Redox (A16) (MLRA 1 | Iron-Manganese Masses (F12) (LRR (| |
| | lucky Mineral (S1) (LRR O, | | wetland hydrology must be present, |
| | Gleyed Matrix (S4) | · · · · · · · · · · · · · · · · · · · | unless disturbed or problematic. |
| | edox (S5) | Reduced Vertic (F18) (MLRA 150A, 1 | |
| | Matrix (S6) | Piedmont Floodplain Soils (F19) (MLR | |
| | | Anomalous Bright Loamy Soils (F20) (| MLRA 149A, 153C, 153D) |
| | rface (S7) (LRR P, S, T, U) | | |
| Restrictive t | _ayer (if observed): | | |
| Туре: | | | |
| | | | |
| Depth (inc | ches): | | Hydric Soll Present? Yes/_ No |
| | ches): | | Hydric Soll Present? Yes No |
| Remarks: | | | |
| Remarks: | | roble to be token | |
| Remarks: | | noble to be token | |
| Remarks: | | noble to be token | |
| Remarks: | | noble to be token ed in. Assured hyd | |
| Remarks: | | noble to be token ed in. Assured hyd and hydrophytic v | |
| Remarks: | | ad in. Assured hydrophytic v | because stormwotas for due to presence of egetstien |
| Remarks: | | noble to be token ed in. Assured hyd and hydrophytic v | |
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| Remarks: | | noble to be token ed in. Assured hyd and hydrophytic v | |
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| Remarks: | Somples or was fere | note to be token ed in. Assured hyd and hydrophytic v | |
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| Remarks: | Somples un | note to be token ed in. Assured hyd and hydropolistic v | because stormwotas fre die to présence of egetstien |
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| Remarks: | Somples un | note to be token ed in. Assured hydropologic w | because stormwotas fre die to présence of egetstien |
| Remarks: | Somples un | note to be token ed in. Assured hyd and hydropologic v | because stormwotas fre due to présence of egetstien |
| Remarks: | Somples un | note to be token ed in. Assured hyd and hydropologic v | because stormwotas fre due to présence of egetstien |
| Remarks: | Somples un | note to be token ed in. Assured hyd and hydrophytic v | because stormwotas fre due to présence of egetstien |
| Remarks: | Somples un | note to be token ed in. Assured hyd and hydropologic v | because stormwotas fre due to présence of egetstien |
| Remarks: | Somples un | note to be token ed in. Assured hyd and hydrophytic v | because stormwotas tru due to présence of egatistien |

Stream Features Field Sheet

| Date: 5/24/15 Project Site: Purple Line WUS#: 82 |
|---|
| Observer(s) 55, MD |
| Stream Flow: Perennial: Intermittent Ephemeral |
| Gradient: Classification: R4SB2 |
| Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) |
| Explain: rig-rap 1, sed outflow for SWM and |
| Channel Has (check all that apply): Bed and Banks OHWM Clear, natural line impressed on the bank Changes in character of soil Shelving Vegetation matted down, bent, or absent Channel Has (check all that apply): destruction of terrestrial vegetation the presence of wrack line sediment sorting scour |
| leaf litter disturbed or washed away sediment deposition abrupt change in plant community water staining other (list): |
| Discontinuous OHWM (explain): |
| Morphology: Avg. Channel Width 3 Depth 2 Avg. Water Depth 3 |
| Has stream morphometry been altered? Y Describe: 110 - 100 100 |
| charre) |
| Habitat and Pollutants: Substrate (predominant type (s)): |
| Habitat Complexity (characterize): Only 1, p-1, p habitat present |
| Park Everien Course Madavate Minar |
| Bank Erosion: Severe Moderate Minor |
| Describe: 10 hours energy |
| Silt Deposition: |
| Pollutants (observation / potential sources): Howking husy |
| Sterroughter Quifeller and Quil Color of A |
| Stormwater Outfalls: OUT-PON S SWM Rand |

| Biological Habitat For (check all that apply) Federally Listed species | Fish Spawn Areas | | |
|--|-------------------------------|--|--|
| . odorany Listed species | | | |
| Other Environmentally-Sensitive Species | Aquatic/Wildlife Diversity | | |
| Explain Findings: | | | |
| | | | |
| Riparian Zone: Development: Pood 6 | Shrubs Herbs | | |
| Riparian vegetation: Forest | Shrubs Herbs | | |
| Dominant Species: Acar negun | inguatolia, Peltunda Visquica | | |
| Parthenpelsus que | inguatolia, Peltunda VIsquica | | |
| Riparian Buffer Width: 750 8+ | l J | | |
| Approximate % Shading by Woody Species: | 30% | | |
| Notes: | | | |
| | | | |
| | | | |

| | <u> </u> | | 400 110 101 |
|--|--|---|--|
| | TERMINATION DATA FOR | M – Eastern Mou | ntains and Piedmont |
| Project/Site: Turple UV | Q City/Cour | ntv: YC | Sampling Date: 4-26-1 |
| Applicant/Owner: _MTA | Communication Communication | | State: MD Sampling Point: UTP- |
| nvestigator(s): 65115 | Section | Township, Range: | State Samping Fount |
| andform (hillslope, terrace, etc.): | | | Canyay a 1 |
| ubregion (LRR or MLRA): MLRA | A DATE OF THE STATE OF THE STAT | | e): <u>Convex</u> Slope (%): <u> </u> |
| oil Map Unit Name: Christiana | Day war all change land | Long: | Datum: |
| The contract of the property o | Lin transaction - | | NWI classification: UPL |
| re climatic / hydrologic conditions on the sit | | | |
| re Vegetation, Soil, or Hydro | | | Circumstances" present? Yes No |
| re Vegetation, Soil or Hydro | ology naturally problematic | ? (If needed, e | xplain any answers in Remarks.) |
| UMMARY OF FINDINGS - Attac | h site map showing sampl | ling point locatio | ns, transects, important features, etc. |
| | les V No | | |
| 11 11 0 11 0 | los / No | the Sampled Area | |
| M (| es No No | vithin a Wetland? | YesNo |
| Remarks: | of Francisco | | |
| | | | |
| | | | |
| | | | |
| | | | |
| YDROLOGY | acu a | | |
| Wetland Hydrology Indicators: | 90°64 S | | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is requ | required; check all that apply) | | Surface Soil Cracks (B6) |
| Surface Water (A1) | | | |
| High Water Table (A2) | Hydrogen Sulfide Odor (C1) | | Sparsely Vegetated Concave Surface (B8)Drainage Pattems (B10) |
| Saturation (A3) | Oxidized Rhizospheres | Drainage Patterns (B10) Moss Trim Lines (B16) | |
| Water Marks (B1) | Presence of Reduced In | | Moss Trin Lines (BTo) Dry-Season Water Table (C2) |
| Sediment Deposits (B2) | Recent Iron Reduction in | | Crayfish Burrows (C8) |
| Drift Deposits (B3) | Thin Muck Surface (C7) | | Saturation Visible on Aerial Imagery (C9) |
| Algal Mat or Crust (B4) | Other (Explain in Remar | | Stunted or Stressed Plants (D1) |
| Iron Deposits (B5) | | The second | Geomorphic Position (D2) |
| Inundation Visible on Aerial Imagery (B | 7) | | Shallow Aquitard (D3) |
| Water-Stained Leaves (R9) | e philippe | | Microtopographic Relief (D4) |
| Aquatic Fauna (B13) | | | FAC-Neutral Test (D5) |
| Field Observations: | OV - Missille 1. | | 37.7. |
| Surface Water Present? Yes | No Depth (inches): | 5 | |
| Water Table Present? Yes | No Depth (Inches): | | |
| Saturation Present? Yes / | No Depth (inches): | Wetland H | ydrology Present? Yes No |
| (includes capillary fringe) | anitorina well a sistable to the | | The second secon |
| Describe Recorded Data (stream gauge, m | onitoring well, aenal photos, previo | ous inspections), if ava | ilable: |
| Remarks: | Warnery No. | | 12 |
| Λ . | O. mevucalmolic | | |
| black drain pipe- | that's into auni | A . | 1 1 01 |
| 4 | 1 CILI | un chur | rela Chainel |
| The contrence of | flows into another | 0 (1. | 20 10 : = - |
| Gld Dans LA. | figure 1 and | weins | Les nas Soznitizand |
| inventation: | n which 100.1 | Set to | 10 CT. (- 5 - a) |
| (+ 1 mm = 24 mm) | The same of the sa | MITAL | ins stumillely |
| 2011 81B in | two of mo- | Vano. | |
| | 1 h | Arragamps | |
| • | 5.4 | | |
| | \$8 | | |
| | | | |

| Office continued VIS and | Absolute | Dominant | Indicator | Sampling Point: <u>UTP-1</u> Dominance Test worksheet: |
|--|-----------------------|---------------|------------------|--|
| ree Stratum (Plot size:) fera | % Cover | Species? | Status | Number of Dominant Species |
| 281 mail = 100 12 Co. 2 18 co. 7 co. 100 | of Augure | o luller labo | IAM | That Are OBL, FACW, or FAC: (A) |
| 1140 (1140 | , | | | Total Number of Dominant |
| | | | | Species Across All Strata: (B) |
| | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: (A/F |
| | | | | That Are OBL, FACW, or FAC: 15 (A/E |
| and the second state of different states are until a monthly in | | - minimi | 1000 97- | Prevalence Index worksheet: |
| i nii my 8 ii 140vano zapiniitoza basquit | 5 | = Total Cov | /er | Total % Cover of: Multiply by: |
| apling Stratum (Plot size:) | 6.00 20 | lignes g | rilwana: | OBL species x 1 =x 1 = |
| . <u>/ </u> | | | | FACW species x 2 = |
| TO THE TIME | QUITATE II | - I | | FAC species x 3 = |
| 240 | | - | JV | FACU species x 4 = |
| • | | | | UPL species x 5 = |
| | | | | Column Totals: (A) (B |
| | - | | - 14 | Prevalence Index = B/A = |
| | 11 | | | Hydrophytic Vegetation Indicators: |
| hrub Stratum (Plot size:) Lyurdanbur styrus flua | - 4 | = Total Cov | rer — | 1 - Rapid Test for Hydrophytic Vegetation |
| . Liquidambour styracitha | _d | | FAC | 2 - Dominance Test is >50% |
| | - 10 | | | 3 - Prevalence Index is ≤3.0¹ |
| Processor are united male for standards | | | | 4 - Morphological Adaptations ¹ (Provide supportir data in Remarks or on a separate sheet) |
| nent name essteel | | FOI LONGIA | | Problematic Hydrophytic Vegetation¹ (Explain) |
| Contract Versional Court St. | - No | nabO eba | as capina | CA EMIC ABWIND |
| JULIA BERTHELLING (ED) EIG | Francis in | 25 P 1981 | 00 YT (20 F30 D) | ¹ Indicators of hydric soil and wetland hydrology must |
| 3 (SO) alde LouteV. no Louis John John John John John John John John | (3.2) (| CH 188 WHEN | TO MAKE THE | be present, unless disturbed or problematic. |
| lerb Stratum (Plot size:) | The finality | = Total Cov | /er | Definitions of Five Vegetation Strata: |
| . Tupha lattolia | 15_ | (TD) doubt | OBL | Tree – Woody plants, excluding woody vines. |
| Polygonum Sugnitatum | 50 | 4 | OBL | approximately 20 ft (6 m) or more in height and 3 in. |
| Leedsin vivanco | 20 | Y. Halley | FACE | (7.6 cm) or larger in diameter at breast height (DBH). |
| Cover crinities | 50 | | OBL | Sapling – Woody plants, excluding woody vines, |
| April 100 - Linda go attanto | - | | | approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. |
| - | | | | Church Washington and the Sanapayse (3.114) |
| | | | | Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. |
| | | | - | Herb - All herbaceous (non-woody) plants, including |
| 19 5 821 of male Albahara out also | 1 | To the same | E-117 18- | herbaceous vines, regardless of size, and woody |
| | Base sini sa | | or block | plants, except woody vines, less than approximately 3 ft (1 m) in height. |
| 1 | 217 2 194 (27.14, 4.4 | 100 | | |
| | 135 | | | Woody vine - All woody vines, regardless of height. |
| oody Vine Stratum (Plot size:) | 155 | = Total Cov | /er | |
| Lonicera japinica | 30 | 4 | FAC | |
| | | | | the state of the s |
| | | b: 6 T | The state of | |
| | | | | Hydrophytic |
| | | 1.65 | | Vegetation Present? Yes V |
| | <u> 30</u> | = Total Cov | /er | |
| emarks: (Include photo numbers here or on a separate si | neet.) | | | |
| | , | | | |
| | | | | |
| | | | | |

Sampling Point: UTP-1

| Depth Matrix (inches) Color (moist) % | Redox Features | • |
|---|--|--|
| h-8 104R3/3 102 | Color (moist) % Type ¹ Loc ² | Texture Remarks |
| 81 Refusal | | |
| verusio | due to rip rap | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| Type: C=Concentration, D=Depletion, RM | =Reduced Matrix, MS=Masked Sand Grains. | 21 postion: DI -Dere Lining Maddets |
| ydric Soil Indicators: | masked band Grains. | ² Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils ³ : |
| _ Histosol (A1) | Dark Surface (S7) | 2 cm Muck (A10) (MLRA 147) |
| _ Histic Epipedon (A2) | Polyvalue Below Surface (S8) (MLRA 147 | 7, 148) Coast Prairie Redox (A16) |
| _ Black Histic (A3) | Thin Dark Surface (S9) (MLRA 147, 148) | (MLRA 147, 148) |
| _ Hydrogen Sulfide (A4) _ Stratified Layers (A5) | Loamy Gleyed Matrix (F2) | Piedmont Floodplain Soils (F19) |
| _ 2 cm Muck (A10) (LRR N) | Depleted Matrix (F3) | (MLRA 136, 147) |
| Depleted Below Dark Surface (A11) | Redox Dark Surface (F6)Depleted Dark Surface (F7) | Red Parent Material (TF2) |
| _ Thick Dark Surface (A12) | Redox Depressions (F8) | Very Shallow Dark Surface (TF12) Other (Explain in Remarks) |
| _ Sandy Mucky Mineral (S1) (LRR N, | Iron-Manganese Masses (F12) (LRR N, | Other (Explain at Nemarks) |
| MLRA 147, 148) | MLRA 136) | |
| _ Sandy Gleyed Matrix (S4) | Umbric Surface (F13) (MLRA 136, 122) | ³ Indicators of hydrophytic vegetation and |
| Sandy Redox (S5) Stripped Matrix (S6) | Piedmont Floodplain Soils (F19) (MLRA 1 | 48) wetland hydrology must be present, |
| estrictive Layer (if observed): | | unless disturbed or problematic. |
| Type: | | |
| Depth (inches): | | |
| | | Hydric Soil Bracont2 Vos |
| emarks: | | Hydric Soil Present? YesNo |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | 9 | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| | | Hydric Soil Present? Yes No |
| emarks: | | Hydric Soil Present? Yes No |
| emarks: | | Hydric Soil Present? Yes No |
| emarks: | | Hydric Soil Present? Yes No |
| emarks: | | Hydric Soil Present? Yes No |
| emarks: | | Hydric Soil Present? Yes No |
| emarks: | | Hydric Soil Present? Yes No |
| emarks: | | Hydric Soil Present? Yes No |
| emarks: | | Hydric Soil Present? YesNo |

City/County: Montagmery Project/Site: Sampling Point: V Applicant/Owner: Investigator(s): Section, Township, Range: Landform (hillslope, terrace, etc.): + occ Subregion (LRR or MLRA): ML 11-1-Blocktown channer Soil Map Unit Name: Knnk NWI classification: No ____ (If no, explain in Remarks.) Are climatic / hydrologic conditions on the site typical for this time of year? Yes Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? is the Sampled Area Hydric Soil Present? within a Wetland? Wetland Hydrology Present? Remarks: HYDROLOGY Wetland Hydrology indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8) Hydrogen Sulfide Odor (C1) High Water Table (A2) Drainage Patterns (B10) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Moss Trim Lines (B16) Saturation (A3) ___ Dry-Season Water Table (C2) ___ Presence of Reduced Iron (C4) Water Marks (B1) Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6) Crayfish Burrows (C8) Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1) Iron Deposits (B5) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3) Water-Stained Leaves (B9) Microtopographic Relief (D4) Aquatic Fauna (B13) ___ FAC-Neutral Test (D5) Field Observations: Yes _ No _ Depth (inches): _ Surface Water Present? Water Table Present? Saturation Present? Wetland Hydrology Present? Yes _____ (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: stream is incused at has likely undernined the hydrology area has been manipulated by golf carse maintainance trees removed, debris placed in

| The Other transfer of the Control of | Absolute Dominant Ind | |
|--|---------------------------|---|
| ree Stratum (Plot size:) | % Cover Species? S | tatus |
| · Liciadendam trligitera | _ <u>40 Y, FA</u> | Number of Dominant Species That Are OBL, FACW, or FAC: (A) |
| . Liquidanbor styracifly | | -A-C . |
| | | Total Number of Dominant |
| | | Species Across All Strata: (B) |
| | The second second second | Percent of Dominant Species |
| 5 | to the second | That Are OBL, FACW, or FAC: 25 (A/E |
| THE PROPERTY OF THE PARTY OF TH | (i- 19) / (st.) | Prevalence index worksheet: |
| | And the second | |
| A County With Son A form | | |
| Sapling/Shrub Stratum (Plot size:) | 90 = Total Cover | OBL species x 1 = |
| · Lonicer tartanía | 50 4 FA | FACW species x 2 = |
| | 50 4 FA | |
| | haranezaren al F | FACU species x 4 = |
| G9 at | Designation of the second | UPL species x 5 = |
| | CANDON DUMBER | Column Totals: (A) (B) |
| · | | 24p |
| | | Prevalence Index = B/A = |
| | | Hydrophytic Vegetation Indicators: |
| | | 1 - Rapid Test for Hydrophytic Vegetation |
| | | 2 - Dominance Test is >50% |
| 0 | | 3 - Prevalence Index is ≤3.0¹ |
| 0 | | |
| lerb Stratum (Plot size:) | 50 = Total Cover | 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) |
| . Blechoma hederacea | SU Y FA | · 通用中国的 10 元 10 |
| | | — Problematic Hydrophytic Vegetation ¹ (Explain) |
| Supplement 2 of Supplement Supplement Supplement | rádifi sária ánits | tuck 1 |
| All the Spotter A. | CoOl myO spane. | Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| | of said toward and | |
| 132) of a fine of the desire of the | K. J. B. Baller | Definitions of Four Vegetation Strata: |
| (ii) svenuling par | The second second | 1 1100 WOODS Plants, excluding viries, 5 III. (7.5 CM) Of |
| day prompted to a protection as | 17.00 | more in diameter at breast height (DBH), regardless of |
| adistria de la compania del compania de la compania del compania de la compania del la compania de la compania | D. I small of the | height. |
| YSC - TOTAL MAN | | Sapling/Shrub - Woody plants, excluding vines, less |
|). | | than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| | | |
| 1 | - —— —— — | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. |
|) | | |
| | 50 = Total Cover | Woody vine - All woody vines greater than 3.28 ft in |
| oody Vine Stratum (Plot size:) | | height. |
| H | | grand seed to the seed of the |
| The second section of the second seco | V 3 1560 0 | TOTAL OF THE PROPERTY OF STREET |
| - 2 2 Mileso 1 | | |
| | | |
| | | Hydrophytic / |
| | | Vegetation |
| | | |
| | = Total Cover | Present? Yes No V |

| C | 0 | п | |
|---|---|---|--|
| | | | |

| | eded to document the indicator or confirm | n the absence of indicators.) |
|--|--|---|
| Depth Matrix (inches) Color (moist) % Color (moist) % | Redox Features folor (moist) % Type ¹ Loc ² | Texture Remarks |
| | | |
| ¹ Type: C=Concentration, D=Depletion, RM=Red | used Matrix MC-Marked Cond Coning | ² Location: PL=Pore Lining, M=Matrix. |
| Hydric Soll Indicators: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) | Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 14 | Indicators for Problematic Hydric Soiis ³ : 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 147, 148) Piedmont Floodplain Soils (F19) (MLRA 136, 147) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) |
| Restrictive Layer (If observed): | | |
| Type. | | |
| Type: Depth (inches): | | Hydric Soll Present? Yes No |
| | · | Hydric Soll Present? Yes No |
| Depth (inches): | | Hydric Soll Present? Yes No |
| Depth (inches): | | Hydric Soll Present? Yes No |
| Depth (inches): | | |

| Project/Site: Purple (| ill city | County Silver Som | 10/Mont sampling [| 3-2-12 |
|---|--|---------------------------------------|--|--|
| Applicant/Owner: MTA | entered to resemble 20002 | 7County. <u>91109 31711</u> | Sampling D State: MD Sampling | Point: UTP- |
| | 1 P. Rodges sec | tion Township Range: | 7152 | |
| andform (hillslope terrace etc.) | loodplain Local n | alief (concave, convey, non- | o): Can lak | Clone (9/): |
| Catalogni (missope, terrace, etc.). | 4111A | | | |
| Subregion (LRR or MLRA): MLLA | | Long: | | Datum: |
| Soil Map Unit Name: | 5 silt loam, 0-3 % si | lopes | NWI classification: | LAND |
| Are climatic / hydrologic conditions or | the site typical for this time of year? | Yes No (I | f no, explain in Remarks.) | |
| Are Vegetation, Soil, | or Hydrology significantly dist | urbed? Are "Normal | Circumstances" present? Ye | es No |
| | or Hydrology naturally probler | | xplain any answers in Remark | |
| SUMMARY OF FINDINGS - | Attach site map showing sa | | | |
| Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? | Yes No Yes No Yes No | Is the Sampled Area within a Wetland? | Yes No | (|
| Remarks: | 163 | | | |
| far Hydrophyllic Vegetabon | | | | |
| HYDROLOGY | S 2 Domination | | | Jestina of |
| Wetland Hydrology Indicators: | positioneM = 6 | | Secondary Indicators (minimu | im of two required) |
| Primary Indicators (minimum of one | | | Surface Soil Cracks (B6) | The state of the s |
| Surface Water (A1) | True Aquatic Plants | (R14) | | |
| High Water Table (A2) | | | Sparsely Vegetated Cond Drainage Patterns (B10) | Property and the second second |
| Saturation (A3) | the first and the second secon | eres on Living Roots (C3) | Moss Trim Lines (B16) | |
| | Presence of Reduc | | Dry-Season Water Table | (C2) |
| Sediment Deposits (B2) | | tion in Tilled Soils (C6) | Crayfish Burrows (C8) | (02) |
| Drift Deposits (B3) | Thin Muck Surface | | Saturation Visible on Aer | ial Imagery (C9) |
| Algai Mat or Crust (B4) | Other (Explain in R | ' ' | Stunted or Stressed Plan | |
| Iron Deposits (B5) | | | Geomorphic Position (D2 | |
| Inundation Visible on Aerial Ima | gery (B7) | | Shallow Aquitard (D3) | 9 |
| Water-Stained Leaves (B9) | | | Microtopographic Relief (| (D4) |
| Aquatic Fauna (B13) | | | FAC-Neutral Test (D5) | |
| Field Observations: | | | | |
| Surface Water Present? Yes | No Depth (inches): | l l | | |
| Water Table Present? Yes | No Depth (inches): | | no all the gr | The state of |
| Saturation Present? Yes | No Depth (inches): | Wetland H | ydrology Present? Yes | No_V |
| (includes capillary fringe) Describe Recorded Data (stream ga | uge, monitoring well, aerial photos, p | revious inspections), if avail | able: | 8 |
| Remarks: | red garde | | | |
| | | | | |
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| EGETATION (Four Strata) – Use scientif | | | . Indianta | Sampling Point: UTP-3 |
|--|--|----------------------|--|--|
| Free Stratum (Plot size:) | | Dominant Species? | | Dominance Test worksheet: |
| | 70 COVEL | Species | | Number of Dominant Species 4 |
| · Platanus orcidentalis | 30_ | | FACW | That Are OBL, FACW, or FAC: (A) |
| Liriadenohon tulipitra | 25 | 4 | FACU | |
| 3. Aces necundo | 10. | out ruffet co | FAC | Total Number of Dominant |
| £4 | - 12 | 1/ | | Species Across All Strata: (B) |
| trixinis pennsylvania. | prod S. | | FACW | Percent of Dominant Species |
| Color Called Called Color Called Call | | 1900 | | Percent of Dominant Species That Are OBL, FACW, or FAC: 57 (A/B) |
| | | | | That Are OBL, FACVV, of FAC. |
| 5 | | | 1 (1) | Prevalence index worksheet: |
| 7 | | | | The state of the s |
| APP CHARLES BEEN CONTROL OF THE PARTY OF THE | | | | Total % Cover of: Multiply by: |
| Spinish a Samida for alumba an | 76 | = Total Co | Mark Street | OBL species x 1 = |
| Sanling/Shruh Stratum (Plot size: | , | - Total Co | VEI | FACW species <u>50</u> x 2 = <u>10()</u> |
| Sapling/Shrub Stratum (Plot size: LONICO TO TOCK | 110 | Y | FACU | FAC species <u>30</u> x3 = <u>240</u> |
| Louison lactorica | <u> </u> | | | |
| Lindra penzala | 5_ | | FACW | FACU species <u>\$6</u> x 4 = <u>340</u> |
| | THE PARTY OF THE P | | 38 av | UPL species x 5 = x 5 |
| | 155 | | | Column Totals: 215 (A) 680 (B) |
| | | | 25 | Column Lotals: (A) 680 (B) |
| 5 | | | | 7 14 mame |
| 3 | | | | Prevalence Index = B/A = 3.16 |
| | | | | Hydrophytic Vegetation Indicators: |
| 7. <u></u> | | | | |
| B | | | | |
|). | | | 1.7 | 2 - Dominance Test is >50% |
| | | | | 3 - Prevalence Index is ≤3.0 ¹ |
| 10. | | | | 4 - Morphological Adaptations (Provide supporting |
| | <u>45</u> | = Total Co | ver | data in Remarks or on a separate sheet) |
| Herb Stratum (Plot size:) | | | | |
| . Ranuvillas filaria | 100 | 4 | FAC* | Problematic Hydrophytic Vegetation ¹ (Explain) |
| Colothana hoderacea | 7/9 | ¥ Y | FACU | Strigge Weige (A.I.) |
| | _ 00 | The Contract of | 171001 | ¹ Indicators of hydric soil and wetland hydrology must |
| (BriB) almultari sejethiari | | EN ENDINES PEN | THE CONTRACTOR | be present, unless disturbed or problematic. |
| 4. (DE6) - V_ SHI BROW 125 5. (DE4) - V_ SHI BROW 125 | | | | AUT COLLEGE TO A STATE OF THE S |
| Last Figure 1986 - (Igital 2 gr | 11500 | OF STREET | CT RESIDENCE | Definitions of Four Vegetation Strata: |
| A SECTION AND A | CONTRACTOR SERVICE | To the stage of | PERMITTER | Tree - Woody plants, excluding vines, 3 in. (7.6 cm) of |
| , and very an interest the second remaining | | 100 | | more in diameter at breast height (DBH), regardless of |
| 7. | | | | height. |
| 3. | | | | 2 POS 102 SO 102 |
| | | | | Sapling/Shrub - Woody plants, excluding vines, less |
|) | | | | than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| O. 16 (fourth for sourcents) | | | | the converse beau released |
| 1 | | | | Herb – All herbaceous (non-woody) plants, regardless |
| | | -640 | | of size, and woody plants less than 3.28 ft tall. |
| 2 | | | | *icommission |
| | 80 | = Total Co | ver | Woody vine – All woody vines greater than 3.28 ft in |
| Noody Vine Stratum (Plot size:) | E | | _ | height. |
| Milera aponizio | (0) | 4 | FAC | 1 |
| 141/ 60/1 | <u> </u> | | NIA | Lie Manager Manager Line |
| 2. 1115 50. | $ \alpha$ $-$ | | N/K | |
| | in the little | HANNA P. | The state of the s | ne de Maria W a la recenta de la companya del companya del companya de la company |
| | | | | |
| | | | | Hydrophytic |
| 5 | | | | Vegetation |
| 3 | | | | Present? Yes No |
| | 72 | = Total Co | VOE | 1 |
| | | - Total Co | VG1 | |
| Remarks: (Include photo numbers here or on a sepa | rate sheet.) | | | |
| | | | | |
| 1 02/2 1: | 1. 1. | 1 -1 1 | 77 | 7 4 |
| meets 50/20 rule ine * = indicator status | MCOTOR, | out 1 | 1. 2 | 2.0 |
| 1000 | I de con Con | lad | 1 1 -1 | |
| * = indicator status. | taken tro | m 199 | 16 LIST | |
| 1 110-100000 | | • | | |
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| epth Matrix ches) Color (moist) % | Redox Features Color (moist) % Type | e Loc Texture | | |
|---|--|---------------------------------------|--|----------------|
| -10 104R33 100 | | == 51cl | coarse truc | |
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| | | | | |
| no: C-Concentration D-Depletion DM | - Dadward Makir, MC-Marked Cond | 21 | D. B | |
| pe: C=Concentration, D=Depletion, RM dric Soil Indicators: | * | Indi | PL=Pore Lining, M=Matrix cators for Problematic H | lydric Soils³: |
| Histosol (A1) Histic Epipedon (A2) Black Histic (A3) | Dark Surface (S7) Polyvalue Below Surface (S8 Thin Dark Surface (S9) (MLR |) (MLRA 147, 148) | 2 cm Muck (A10) (MLRA Coast Prairie Redox (A16 (MLRA 147, 148) | • |
| Hydrogen Sulfide (A4) Stratified Layers (A5) | Loamy Gleyed Matrix (F2) Depleted Matrix (F3) | - | Piedmont Floodplain Soils (MLRA 136, 147) | s (F19) |
| 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) | Redox Dark Surface (F6)Depleted Dark Surface (F7) | · · · · · · · · · · · · · · · · · · · | Red Parent Material (TF2 Very Shailow Dark Surface | • |
| Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, | Redox Depressions (F8) Iron-Manganese Masses (F1) | | Other (Explain in Remark | |
| MI DA 447 440) | MLRA 136) | | | |
| MLRA 147, 148) Sandy Gleyed Matrix (S4) | Umbric Surface (F13) (MLRA | | ndicators of hydrophytic ve | getation and |
| | | | wetland hydrology must b | e present, |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): | Umbric Surface (F13) (MLRA Piedmont Floodplain Soils (F | | | e present, |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) | Umbric Surface (F13) (MLRA Piedmont Floodplain Soils (F | 19) (MLRA 148) | wetland hydrology must b | e present, |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): | Umbric Surface (F13) (MLRA Piedmont Floodplain Soils (F | 19) (MLRA 148) | wetland hydrology must b unless disturbed or proble | e present, |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): | Umbric Surface (F13) (MLRA Piedmont Floodplain Soils (F | 19) (MLRA 148) | wetland hydrology must b unless disturbed or proble | e present, |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): | Umbric Surface (F13) (MLRA Piedmont Floodplain Soils (F | 19) (MLRA 148) | wetland hydrology must b unless disturbed or proble | e present, |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): | Umbric Surface (F13) (MLRA Piedmont Floodplain Soils (F | 19) (MLRA 148) | wetland hydrology must b unless disturbed or proble | e present, |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): | Umbric Surface (F13) (MLRA Piedmont Floodplain Soils (F | 19) (MLRA 148) | wetland hydrology must b unless disturbed or proble | e present, |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): | Umbric Surface (F13) (MLRA Piedmont Floodplain Soils (F | 19) (MLRA 148) | wetland hydrology must b unless disturbed or proble | e present, |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): | Umbric Surface (F13) (MLRA Piedmont Floodplain Soils (F | 19) (MLRA 148) | wetland hydrology must b unless disturbed or proble | e present, |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): | Umbric Surface (F13) (MLRA Piedmont Floodplain Soils (F | 19) (MLRA 148) | wetland hydrology must b unless disturbed or proble | e present, |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): | Umbric Surface (F13) (MLRA Piedmont Floodplain Soils (F | 19) (MLRA 148) | wetland hydrology must b unless disturbed or proble | e present, |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): | Umbric Surface (F13) (MLRA Piedmont Floodplain Soils (F | 19) (MLRA 148) | wetland hydrology must b unless disturbed or proble | e present, |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictIve Layer (if observed): Type: | Umbric Surface (F13) (MLRA Piedmont Floodplain Soils (F | 19) (MLRA 148) | wetland hydrology must b unless disturbed or proble | e present, |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) strictive Layer (if observed): Type: Depth (inches): | Umbric Surface (F13) (MLRA Piedmont Floodplain Soils (F | 19) (MLRA 148) | wetland hydrology must b unless disturbed or proble | e present, |

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont City/County: Silver Sonnal Applicant/Owner: Investigator(s): Section, Township, Range: Landform (hillslope, terrace, etc.): + Local relief (concave, convex, none): / a wex Subregion (LRR or MLRA): ones silt loam. Soil Map Unit Name: No (if no, explain in Remarks.) Are climatic / hydrologic conditions on the site typical for this time of year? Yes Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? is the Sampled Area Hydric Soil Present? Yes within a Wetland? Wetland Hydrology Present? Remarks: HYDROLOGY Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) ___ Surface Soil Cracks (B6) Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) High Water Table (A2) Hydrogen Sulfide Odor (C1) Saturation (A3) Oxidized Rhizospheres on Living Roots (C3) ___ Moss Trim Lines (B16) Water Marks (B1) Presence of Reduced iron (C4) ___ Dry-Season Water Table (C2) Sediment Deposits (B2) ___ Crayfish Burrows (C8) Recent Iron Reduction in Tilled Soils (C6) Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1) Iron Deposits (B5) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3) Water-Stained Leaves (B9) Microtopographic Relief (D4) Aquatic Fauna (B13) FAC-Neutral Test (D5) Field Observations: Surface Water Present? No ____ Depth (inches): Water Table Present? Yes _____ No ____ Depth (inches): Saturation Present? No Depth (inches): Wetland Hydrology Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: no hydro indicators observed

| Absolute | Dominan | Indicator | Dominance Test worksheet: |
|-----------------------|---|---------------------------|--|
| | | | THE ART OF THE PARTY AND THE P |
| | Y | | Number of Dominant Species That Are OBL, FACW, or FAC: (A) |
| | 4 | | That Ale OBE, I ACW, OI I AC (A) |
| | 7 | | Total Number of Dominant |
| <u>50</u> | 1 | FAC | Species Across All Strata: (B) |
| 30 | | FAC | Mary 124 aug |
| | | | Percent of Dominant Species That Are OBL. FACW. or FAC: 96 (A/B |
| | | 1710- | That Are OBL, FACW, or FAC: (A/B |
| - | 1,000 | 1 6 1 1 | Prevalence Index worksheet: |
| 4 | | CT A POLICE | |
| | | | Total % Cover of: Multiply by: |
| 196 | - Total Ca | VOF. | OBL species x 1 = |
| | - Total Co | vei | FACW species x 2 = |
| 16 | V | r-ACII | , 1440-1450 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| - 12 | - | | |
| 5 | | | FACU species x 4 = |
| 10 | Y | FAC | UPL species x 5 = |
| HOUSELFER TO | | | Column Totale: (A) (P) |
| | | - | Column Totals: (A) (B) |
| | | | B. Aller B. M. Stogen |
| | | | Prevalence Index = B/A = |
| | | | Hydrophytic Vegetation Indicators: |
| | | | 1 - Rapid Test for Hydrophytic Vegetation |
| | | | 1 |
| | | | 2 - Dominance Test is >50% |
| | | | 3 - Prevalence Index is ≤3.0¹ |
| - | | | 4 - Morphological Adaptations ¹ (Provide supportin |
| <u> </u> | = Total Co | ver | data in Remarks or on a separate sheet) |
| - | | | A CONTRACT OF THE PROPERTY OF |
| 70 | 4 | FAC* | Problematic Hydrophytic Vegetation ¹ (Explain) |
| | | in will h | The second secon |
| | A FOUND POINT | The state of the state of | ¹ Indicators of hydric soil and wetland hydrology must |
| | by Mil/Gre | hilly and state | be present, unless disturbed or problematic. |
| f efform | | | Definitions of Four Vegetation Strata: |
| ini | and needs | diffusions. | Definitions of Four Vegetation Strata. |
| Na annual contraction | Control of the | | Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or |
| 5 | Hr. Green | All Turger and | more in diameter at breast height (DBH), regardless of |
| | | | height. |
| - 1 | HU IN PT | a mestral a | BUT HE WAS TO SEE SHIP A COMMENT OF THE SECOND STREET |
| | | | Sapling/Shrub - Woody plants, excluding vines, less |
| | | | than 3 in. DBH and greater than 3.28 ft (1 m) tail. |
| | | | The state of the s |
| T | | | Herb – All herbaceous (non-woody) plants, regardless |
| | | • —— | of size, and woody plants less than 3.28 ft tall. |
| | | | Mary desires All L. Constanting and L. Constanting |
| 70 | = Total Co | ver | Woody vine – All woody vines greater than 3.28 ft in |
| 1 | | att Lyff the | height. |
| 40 | Y | FAC | in the second se |
| - 10 - a | | CHECK TO THE | AND THE RESERVE TO THE PARTY OF |
| | | | there were a set from |
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| | | | 사 [[[[[[] [[] [[] [[] [[] [[] [[] [[] [[|
| III Lines | | 7 | minutes and an artist of the artists |
| | 11.10 | - | Hydrophytic |
| uiilsans | | - | Hydrophytic Vegetation |
| | = = | | |
| | = Total Co | | Vegetation |
| | 70 40 50 30 5 195 15 5 10 | 70 | 70 |

Sampling Point: UTP-4

| | (====================================== | • | | nt the indicator or con | in in the absence | | |
|---------------------|---|---------------|------------------------------|--|--------------------------|--|---|
| Depth (inches) | Matrix (maint) | % | Redox I | eatures | — | | |
| (inches) | Color (moist) | | Color (moist) | % Type ¹ Loc ² | | Remark | |
| 0-2 | 1120/2 | 100 | | | loam | rootlets the | 1 1 |
| 2-6 | 7.54R'4/6 | 100 | | | | fill materia | <u>u </u> |
| 6-12+ | 7.54R4/6 | 100 | | | | | |
| | | | | | | | 12 |
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| | | | | | | | <u></u> |
| 72 | | | | | | | |
| ¹Type: C=Co | oncentration, D=Depl | letion, RM=Re | duced Matrix, MS= | Masked Sand Grains. | ² Location: F | PL=Pore Lining, M=Matrix | K. |
| Hydric Soil i | | Fit | | | | cators for Problematic | |
| Histosol | | | Dark Surface (S | 37) | _ | 2 cm Muck (A10) (MLRA | 147) |
| | ipedon (A2) | | | v Surface (S8) (MLRA 1 | 47, 148) | Coast Prairie Redox (A1 | |
| Black His | • • | | | ice (S9) (MLRA 147, 14 | • | (MLRA 147, 148) | . (540) |
| | n Sulfide (A4) Layers (A5) | | Loamy Gleyed Depleted Matrix | | | Piedmont Floodplain Soi | Is (F19) |
| | ck (A10) (LRR N) | • | Depleted Math | | | (MLRA 136, 147) Red Parent Material (TF: | 2) |
| | Below Dark Surface | e (A11) | Depleted Dark | | | Very Shallow Dark Surfa | |
| Thick Da | rk Surface (A12) | | Redox Depress | ions (F8) | | Other (Explain in Remark | |
| | ucky Mineral (S1) (L | .RR N, | | e Masses (F12) (LRR N | 1 | | |
| | 147, 148) | | MLRA 136) | (E40) (BH DA 400 400) | 3, | | |
| | leyed Matrix (S4) edox (S5) | | | (F13) (MLRA 136, 122) Ipiain Soils (F19) (MLR A | | ndicators of hydrophytic v wetland hydrology must i | - |
| | Matrix (S6) | • | Fleditionit Floor | piain Soils (F19) (MERA | (140) | unless disturbed or probl | |
| | | | | | | | ioitiatio. |
| Restrictive L | .ayer (if observed): | | | | | | |
| Type: | ayer (if observed): | c | _ | | | | / |
| Type: | ayer (if observed): | 6 | - | | Hydric Sc | | No / |
| Type: | | < | - | | Hydric Sc | | No <u></u> |
| Type: Depth (inc | | < | - | | Hydric So | | |
| Type: Depth (inc | | | - | | Hydric Sc | | No <u></u> |
| Type: Depth (inc | | | - | | Hydric Sc | | No |
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| Type: Depth (inc | | | - | | Hydric Sc | | No |
| Type: Depth (inc | | | - | | Hydric Sc | | No |
| Type: Depth (inc | | | | | Hydric Sc | | No |
| Type: Depth (inc | | | | | Hydric Sc | | No |
| Type: Depth (inc | | | - | | Hydric Sc | II Present? Yes | No |
| Type: Depth (inc | | | | | Hydric Sc | II Present? Yes | No |
| Type: Depth (inc | | | | | Hydric Sc | II Present? Yes | No |
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| Type: Depth (inc | | | | | Hydric Sc | II Present? Yes | No |
| Type: Depth (inc | hes): | | | | Hydric Sc | II Present? Yes | No |
| Type: Depth (inc | | | | | Hydric Sc | II Present? Yes | No |
| Type: Depth (inc | hes): | | | | | II Present? Yes | No |
| Type: Depth (inc | hes): | | | | Hydric Sc | II Present? Yes | No No |
| Type: Depth (inc | hes): | | | | | II Present? Yes | No |
| Type: Depth (inc | hes): | | | | | II Present? Yes | No |
| Type: Depth (inc | hes): | | | | | II Present? Yes | No |
| Type: Depth (inc | hes): | | | | | II Present? Yes | No |

| Project/Site:Purn | 10 1100 | od i west of City | County: College Par | Sampling Date: 2-2-12 |
|---|---|--|--|--|
| | | use I was party how | COTIEND VOI | |
| Applicant/Owner: MTH | 20 -6 | 1 1 1 1 1 1 1 | | State: MD Sampling Point: UTP5 |
| Investigator(s): H. Spans | | | tion, Township, Range: | |
| Landform (hillslope, terrace, etc.): | jentle stop | Local re | elief (concave, convex, nor | ne): Slope (%): |
| Subregion (LRR or MLRA): MLR | A-148 Lat | | Long: | Datum: |
| Soil Map Unit Name: Codenis | 5 + Hatbo | ro spils fre | g. Flooded | NWI classification: UPLA NO |
| Are climatic / hydrologic conditions or | | The state of the s | | |
| | | | | |
| | | | | Circumstances" present? Yes No No |
| Are Vegetation, Soil, | or Hydrology | naturally probler | matic? No (If needed, e | explain any answers in Remarks.) |
| SUMMARY OF FINDINGS - | Attach site n | nap showing sa | mpling point location | ns, transects, important features, etc. |
| Hydrophytic Vegetation Present? | Yes | No 🗸 | | |
| Hydric Soil Present? | Yes | No > | is the Sampled Area | |
| Wetland Hydrology Present? | Yes | No | within a Wetland? | Yes No <u>X</u> |
| Remarks: | | = 10 = = | <u> </u> | |
| | | | | |
| SENOTES SI LINETE | | | | |
| many saw of Self. 1 | | | | |
| 15 | | | | |
| Title greater | ngnow=2 m | | | 9 |
| HYDROLOGY | 12 17 17 16 16 16 16 16 16 16 16 16 16 16 16 16 | | BF A | |
| Wetland Hydrology Indicators: | | | | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one | is required; chec | k all that apply) | <u> </u> | Surface Soil Cracks (B6) |
| Surface Water (A1) | oranie so i sa | True Aquatic Plants | s (B14) | Sparsely Vegetated Concave Surface (B8) |
| High Water Table (A2) | Learner Hode | Hydrogen Sulfide C | Odor (C1) | Drainage Patterns (B10) |
| Saturation (A3) | J. T. J. | Oxidized Rhizosphe | eres on Living Roots (C3) | Moss Trim Lines (B16) |
| Water Marks (B1) | | Presence of Reduc | ed Iron (C4) | Dry-Season Water Table (C2) |
| Sediment Deposits (B2) | . Jid wito sivi | Recent Iron Reduct | tion in Tilled Soils (C6) | Crayfish Burrows (C8) |
| Drift Deposits (B3) | 111 - 1110 1 1 1 1 1 1 1 1 | Thin Muck Surface | | Saturation Visible on Aerial Imagery (C9) |
| Algal Mat or Crust (B4) | | Other (Explain in Re | emarks) | Stunted or Stressed Plants (D1) |
| Iron Deposits (B5) | E dumente | | | Geomorphic Position (D2) |
| Inundation Visible on Aerial Ima | | | | Shallow Aquitard (D3) |
| | | | | Microtopographic Relief (D4) |
| Aquatic Fauna (B13) | No an expense | | | FAC-Neutral Test (D5) |
| Field Observations: | after may also | AV Table | p=0.1 m | |
| Surface Water Present? Yes | No 💢 | _ Depth (inches): | 100 | the seal to entire year where the |
| Water Table Present? Yes | No 💢 | _ Depth (inches): | - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 | A secretary |
| Saturation Present? Yes | No | _ Depth (inches): | Wetiand H | lydrology Present? Yes No |
| (includes capillary fringe) Describe Recorded Data (stream ga | auge, monitoring | well, aerial photos, p | revious inspections), if ava | ilable: |
| = | awalaana | WEL E | | |
| Remarks: | | | | |
| 2 24 | | | | |
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| - 10 mm | | | | |
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| - 10 EX. (************************************ | | | | |
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VEGETATION (Four Strata) - Use scientific names of plants. Absolute Dominant Indicator **Dominance Test worksheet:** Tree Stratum (Plot size: % Cover Species? Status Number of Dominant Species FAC That Are OBL, FACW, or FAC: FACU Total Number of Dominant Species Across All Strata: Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B) 6. Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x 1 = _____ = Total Cover FACW species _ _ x 2 = __ Sapling/Shrub Stratum (Plot size: ____x3= FAC species a MUHITIONA FACU species ___ ___ x 4 = ___ UPL species ____ x 5 = ____ _____ (A) _____ (B) Column Totals: ____ Prevalence index = B/A = Hydrophytic Vegetation indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence index is ≤3.0¹ 4 - Morphological Adaptations (Provide supporting = Total Cover data in Remarks or on a separate sheet) Herb Stratum (Plot size: Problematic Hydrophytic Vegetation¹ (Explain) 1. 12 le than a heterciale FAICU ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. 10. ______ Herb - All herbaceous (non-woody) plants, regardless 11. _____ of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in = Total Cover height. Woody Vine Stratum (Plot size: 1. I shi co ca woonk 2. Celastrus projeculatus Hydrophytic Vegetation Present? = Total Cover Remarks: (include photo numbers here or on a separate sheet.)

Sampling Point:

| Profile Description: (Describe to the deptember Depth | Redox Features Color (moist) % Type¹ Loc² | Texture Remarks |
|---|---|---|
| 57 104R314 100 | | 51 |
| 2-14+ 7.54R3/6 100 | | S |
| | 35 y x . | |
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| a kina ni | | |
| | | |
| ¹ Type: C=Concentration, D=Depletion, RM= | Reduced Matrix, MS=Masked Sand Grains. | ² Location: PL=Pore Lining, M=Matrix. |
| Hydric Soil indicators: | | Indicators for Problematic Hydric Soils ³ : |
| Histosol (A1) Histic Epipedon (A2) | Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, | 2 cm Muck (A10) (MLRA 147) , 148) Coast Prairie Redox (A16) |
| Black Histic (A3) Hydrogen Sulfide (A4) | Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2) | (MLRA 147, 148) Piedmont Floodplain Soils (F19) |
| Stratified Layers (A5) | Depleted Matrix (F3) | (MLRA 136, 147) |
| 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) | Redox Dark Surface (F6) Depleted Dark Surface (F7) | Red Parent Material (TF2) Very Shallow Dark Surface (TF12) |
| Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, | Redox Depressions (F8) | Other (Explain in Remarks) |
| MLRA 147, 148) | Iron-Manganese Masses (F12) (LRR N, MLRA 136) | |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) | Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 14 | ³ Indicators of hydrophytic vegetation and 48) wetland hydrology must be present, |
| Stripped Matrix (S6) | 1 Iodinont 1 Ioodplain Colls (1 15) (MEICA 1- | unless disturbed or problematic. |
| | | unless disturbed or problematic. |
| Restrictive Layer (if observed): | N . | unless disturbed of problematic. |
| | 9 9 | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: | 5 5 | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | 19 99 99 99 99 99 99 99 99 99 99 99 99 9 | |
| Restrictive Layer (if observed): Type: Depth (inches): | 9 9 | |
| Restrictive Layer (if observed): Type: Depth (inches): | 3 3 3 | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |

| Project/Site: Pumle Line | altan a fhathad 1 Not solat Cin | County Callege Park | PG Sampli | ng Date: 3-2-1 |
|--|--|-------------------------------|---|---------------------------------------|
| Applicant/Owner: | noting a frage must be a series - 1.00 | /County: <u>Callege Park/</u> | te: MD Sam | Inling Point:\ 110-L |
| Investigator(s): DR > H5 | 80. | | .e. 1 D Salli | pining Points. (7) 1 4 |
| I CONTRACTOR OF THE PROPERTY O | and the second s | ction, Township, Range: | 4.10.4 | |
| | flat Local r | | | |
| Subregion (LRR or MLRA): MLR | | Long: | | |
| Soil Map Unit Name: <u>Codonus</u> | 5- Hatboro-Urbanlan | id complex 1 | √Wi classification: _ | UPLAND |
| Are climatic / hydrologic conditions on | the site typical for this time of year? | Yes No (If no, | explain in Remarks. |) |
| Are Vegetation, Soil, or | r Hydrology significantly dist | urbed? No Are "Normal Circu | mstances" present? | Yes No |
| Are Vegetation, Soil, or | | | | |
| SUMMARY OF FINDINGS - A | | | | |
| | 200 | | | Art day |
| Hydrophytic Vegetation Present? Hydric Soil Present? | Yes No No No | Is the Sampled Area | | 10000 |
| Wetland Hydrology Present? | Yes No No | within a Wetland? | Yes No | \times |
| Remarks: | 165 110 | + | | |
| HYDROLOGY | Larger Park | # at a | | |
| Wetland Hydrology Indicators: | and and and | Seco | ndary Indicators (mir | nimum of two required) |
| Primary Indicators (minimum of one is | s required; check all that apply) | | Surface Soil Cracks (| (B6) |
| Surface Water (A1) | True Aquatic Plants | s (B14) 5 | Sparsely Vegetated (| Concave Surface (B8) |
| High Water Table (A2) | Hydrogen Sulfide C | | Orainage Patterns (B | |
| Saturation (A3) | Oxidized Rhizosph | | Moss Trim Lines (B1 | |
| Water Marks (B1) | Presence of Reduc | | Ory-Season Water Ta | able (C2) |
| Sediment Deposits (B2) | | | Crayfish Burrows (C8 | A A A A A A A A A A A A A A A A A A A |
| Drift Deposits (B3) | Thin Muck Surface | | | Aerial Imagery (C9) |
| Algal Mat or Crust (B4) | Other (Explain in R | | Stunted or Stressed | |
| Iron Deposits (B5) | (D7) | | Geomorphic Position | |
| inundation Visible on Aerial Imag Water-Stained Leaves (B9) | | | Shallow Aquitard (D3 Microtopographic Re | • |
| Aquatic Fauna (B13) | | | FAC-Neutral Test (D | |
| Field Observations: | | | 70-1104141 1001 (2. | 5) |
| Surface Water Present? Yes | No Depth (inches): | =107 = | | |
| Water Table Present? Yes | | 177 | | |
| Saturation Present? Yes | 1 | Wetland Hydro | logy Present? Yes | s No. |
| (includes capillary fringe) Describe Recorded Data (stream gau | | | | |
| 11 | investmin = i = | | | |
| Remarks: | (10 ²⁵ 64) = 0 ⁴ f | | | |
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VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point: UTP-6

| AND STREET OF STREET STREET STREET | Absolute | Dominant | Indicator | Deminence Test workshoot |
|---|-----------------------|--|--------------------|--|
| Tree Stratum (Plot size:) | % Cover | | | Dominance Test worksheet: Number of Dominant Species |
| 1/2 High prilymous distriction | | | THE PARTY NAMED IN | Number of Dominant Species That Are OBL, FACW, or FAC: |
| 2. | | | | 2 H 2 MM |
| 3. | | | | Total Number of Dominant Species Across Ali Strata: (B) |
| 4 | | | | Opecies Across Air Otrata. |
| | | | | Percent of Dominant Species 93 |
| 5 | 4 15 9 6 | - | | That Are OBL, FACW, or FAC: (A/B) |
| 6 | 4747 | 78577 6 | aylo man | Prevalence index worksheet: |
| /· | Winners . | - Thamsen | ou victions | Total % Cover of: Multiply by: |
| 8 | | | | OBL species x 1 = |
| Sapling/Shrub Stratum (Plot size:) | - | = Total Co | /er | FACW species 10 x2= 20 |
| 1. AU NE SUND. | 10 | ille Y to a | EAC | FAC species $90 \times 3 = 270$ |
| 2 Liquidanbor Stynia (Vu. | - 10 | | ENC | FACU species 40 x 4 = 160 |
| Box in Control Styles | - 15 | 7 | TACOL | - Tor sances a forest and an armoral of |
| 3. Prixing pennylhonia | _ 10_ | 7 | FAUN | UPL species x 5 = Column Totals: (A) (B) |
| 4 | 400 1021 47 17 | 1 | de de | Column Totals: 140 (A) 450 (B) |
| 5 | | | | Prevalence index = B/A = 3.2 |
| 6 | | | | Hydrophytic Vegetation Indicators: |
| 7 | | | | |
| 8 | | | | 1 - Rapid Test for Hydrophytic Vegetation |
| 9 | | | 7. | 2 - Dominance Test is >50% |
| 10. | | | | 3 - Prevalence Index is ≤3.0¹ |
| , | 75 | = Total Co | | 4 - Morphological Adaptations (Provide supporting |
| Herb Stratum (Plot size:) | 0 | 1010100 | | data in Remarks or on a separate sheet) |
| 1. Allum Viheal | ds | 4 | FACU | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 2. Kanuculais filaria | 10 | EXY REAL | FAC* | DATE OF WARRANT COMMENT |
| 3. 4Ster: 50. | -3 | n) sha a | nla | ¹Indicators of hydric soil and wetland hydrology must |
| 1 thiston | - = | no en ade | nla | be present, unless disturbed or problematic. |
| 4. 1113/ 0 5P | | THE BUILDING | | Definitions of Four Vegetation Strata: |
| | | 1/ | | - 10- 10- 10- 10- 10- 10- 10- 10- 10- 10 |
| 5. milmstegion unineum | - 40 | 4 | FAIC | Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or |
| 6. Schedonoms pratensis | 15 | Y de la constante de la consta | FACU | Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of |
| 6. Schedonoms pratensis | <u> </u> | nd notices | FACU | |
| 6. Schedonoms pratensis 7. 8. | - 40 - 15 | Harmonian Listoria Listoria | FACU | more in diameter at breast height (DBH), regardless of height. |
| 6. Schedonoms pratensis | 15 | Totallass | FACU | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less |
| 6. Schedonoms pratensis 7. 8. | - 40 - 15 | nt nottage | FACU | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| 6. Schedonorus pratensis 7. 8. 9. | - 40 - 15 | ni notaca (137. ca (137. ca (137. ca | FACU | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless |
| 6. Schedonorus pratensis 7. 8. 9. 10. 11. | - 40 - 15 | n policie (13) sa (13) sa | FACU | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| 6. Schedonorus pratensis 7. 8. 9. | 97 | - Total Co | FACU | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in |
| 6. Schedonorus pratensis 7. 8. 9. 11. 12. | 97 | = Total Co | FACU | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. |
| 6. Schedonorus pratensis 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) | 97 | = Total Co | FACU | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in |
| 6. Schedonorus pratensis 7. 8. 9. 11. 12. | 97 | = Total Co | FACU | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in |
| 6. Schedonoms pratensis 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) 1. On 1/2 Change of a pmile. 2. | 97 | = Total Co | FACU | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in |
| 6. Schedonoms pratensis 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) 1. UN 19 Ch Japania 2. 3. | 97 | = Total Co | FACU | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in |
| 6. Schedonoms pratensis 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) 1. On 1/2 Change of a pmile. 2. | 97 25 | = Total Co | FACU | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in |
| 6. Schedonoms pratensis 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) 1. UN 19 Ch Japania 2. 3. | 97 25 | = Total Co | FACU | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation |
| 6. Schedonoms pratensis 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) 1. UN 19 Ch Japania 2. 3. | 97 25 | <u> </u> | FACU Ver FAC | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. |
| 6. Schedonoms pratensis 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) 1. UN 19 Ch Japania 2. 3. | 97 25 | = Total Co | FACU Ver FAC | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation |
| 6. Schedonoms pratensis 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) 1. UN 19 Ch Japania 2. 3. | 97 25 e sheet.) | <u> </u> | FACU Ver FAC | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation |
| 6. Schedonoms pratensis 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) 1. On 19 Ch Japania 2. 3. 4. 5. 6. | 97 25 e sheet.) | <u> </u> | FACU Ver FAC | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation |
| 6. Schedonoms praters 5 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) 1. LON 1/2 Long Japan 4 2. 3. 4. 5. 6. Remarks: (Include photo numbers here or on a separate | · | = Total Co | FACU Ver FAC | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes No |
| 6. Schedonoms praters 5 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) 1. LON 1/2 Long Japan 4 2. 3. 4. 5. 6. Remarks: (Include photo numbers here or on a separate | · | = Total Co | FACU Ver FAC | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes No |
| 6. Schedonoms praters 5 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) 1. LON 1/2 Long Japan 4 2. 3. 4. 5. 6. Remarks: (Include photo numbers here or on a separate | · | = Total Co | FACU Ver FAC | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes No |
| 6. Schedonoms praters 5 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) 1. LON 1/2 Long Japan 4 2. 3. 4. 5. 6. Remarks: (Include photo numbers here or on a separate | · | = Total Co | FACU Ver FAC | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes No |
| 6. Schedonoms pratensis 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) 1. On 19 Ch Japania 2. 3. 4. 5. 6. | · | = Total Co | FACU Ver FAC | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes No |
| 6. Schedonoms praters 5 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) 1. LON 1/2 La Japan 4 2. 3. 4. 5. 6. Remarks: (Include photo numbers here or on a separate | · | = Total Co | FACU Ver FAC | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes No |
| 6. Schedonoms praters 5 7. 8. 9. 10. 11. 12. Woody Vine Stratum (Plot size:) 1. Loni / 2 Loni / 4 2. 3. 4. 5. 6. Remarks: (Include photo numbers here or on a separate | · | = Total Co | FACU Ver FAC | more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes No |

ampling Point: UTP-6

| Profile Description: (Describe to the dept | h needed to document the indicator or confirm | the absence of indicators.) |
|--|--|---|
| Depth <u>Matrix</u> | Redox Features | |
| (inches) Color (moist) % | Color (moist) % Type ¹ Loc ² | Texture Remarks |
| 03 104R913, 100 | | Sil, |
| 3-8 10URS 799 | INVRSIB 5 Cm | 51 |
| 8-147-10148513 80 | 10/18/11/10 80 c m | Sil |
| - 10 to died 2 00 | myrelle | |
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| l. <u></u> | | = |
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| | | ε |
| ¹ Type: C=Concentration, D=Depletion, RM=I | Reduced Matrix, MS=Masked Sand Grains. | ² Location: PL=Pore Lining, M=Matrix. |
| Hydric Soil Indicators: | | Indicators for Problematic Hydric Soils ³ : |
| Histosol (A1) | Dark Surface (S7) | 2 cm Muck (A10) (MLRA 147) |
| Histic Epipedon (A2) | Polyvalue Below Surface (S8) (MLRA 147, | |
| Black Histic (A3) | Thin Dark Surface (S9) (MLRA 147, 148) | (MLRA 147, 148) |
| Hydrogen Sulfide (A4) | Loamy Gleyed Matrix (F2) | Piedmont Floodplain Soils (F19) |
| Stratified Layers (A5) | Depleted Matrix (F3) | (MLRA 136, 147) |
| 2 cm Muck (A10) (LRR N) | Redox Dark Surface (F6) | Red Parent Material (TF2) |
| Depleted Below Dark Surface (A11) | Depleted Dark Surface (F7) | Very Shallow Dark Surface (TF12) |
| Thick Dark Surface (A12) | Redox Depressions (F8) | Other (Explain in Remarks) |
| Sandy Mucky Mineral (S1) (LRR N, | Iron-Manganese Masses (F12) (LRR N, | |
| MLRA 147, 148) | MLRA 136) | _ |
| Sandy Gleyed Matrix (S4) | Umbric Surface (F13) (MLRA 136, 122) | ³ Indicators of hydrophytic vegetation and |
| Sandy Redox (S5) | Piedmont Floodplain Soils (F19) (MLRA 14 | |
| 04 | | |
| Stripped Matrix (S6) | | unless disturbed or problematic. |
| Restrictive Layer (if observed): | 1 | unless disturbed or problematic. |
| Restrictive Layer (if observed): Type: | _ | unless disturbed or problematic. |
| Restrictive Layer (if observed): | | unless disturbed or problematic. Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | |
| Restrictive Layer (if observed): Type: Depth (inches): | | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): | | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): | | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): | | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): | | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): | | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): | | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): | | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): | | Hydric Soil Present? Yes No |
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| Restrictive Layer (if observed): Type: Depth (inches): | | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): | | Hydric Soil Present? Yes No |
| Restrictive Layer (if observed): Type: Depth (inches): | | Hydric Soil Present? Yes No No |
| Restrictive Layer (if observed): Type: Depth (inches): | | Hydric Soil Present? Yes No No |
| Restrictive Layer (if observed): Type: Depth (inches): | | Hydric Soil Present? Yes No No |
| Restrictive Layer (if observed): Type: Depth (inches): Remarks: | | Hydric Soil Present? Yes No No |
| Restrictive Layer (if observed): Type: Depth (inches): | | Hydric Soil Present? Yes No No |